THE

CHICAGO MEDICAL EXAMINER.

N. S. DAVIS, M.D., EDITOR.

VOL. IV. NOVEMBER, 1863. NO. 11.

Original Contributions.

ARTICLE XXX.

THE ORGANIC INDEX OF HUMAN LONGEVITY.

BY W. BYRD POWELL, M.D., of Covington, Ky.

MR. EDITOR:—Early in my practice, as a physician, my observations induced me to suspect that human longevity was not so referable to the incidental influences of life as was generally supposed. I observed that some people, who appeared to be soundly physiological and of temperate and prudent habits, died comparatively young, and of disease of comparatively moderate violence. That others lived to old age, with habitually imprudent and intemperate habits, and seemed greatly invulnerable to epidemic and other causes of disease; and, if assailed, recovered. The more I multiplied my observations the more I became impressed with the suspicion, that these different results had an organic cause. Being at this time engaged in repeating the observations of Dr. GALL, it became suggested to me as being possible, perhaps probable, that human longevity might be indicated by some cerebral development, and, henceforth, my observation was directed to the discovery of it.

Under this course of observation, it was not long before I was brought to the conviction, that vigorous life, or such as is attended by an energetic manifestation of the vital functions

generally, is associated with a broad development of the cerebellum and of the base of the cerebrum; and, for the sake of distinction, I designated this class by the epithet of "vigorous life." But many years subsequently, Dr. MARSHALL HALL designated it by the more elegant epithet of "high stimulus." I do not remember that he indicated the organic index of this class. This class is particularly liable to acute forms of disease, as acute rheumatism, pneumonia pleuritis, &c., and a large proportion of this class die comparatively young, but a respectable minority live to old age; and the wherefore of this will be explained in the sequel.

Per contra, there is another class which is distinguished by the base of the cerebrum and the cerebellum being comparatively contracted. The vital functions of this class are never manifested vigorously, but frequently with much activity. This class generally manifests much tenacity of life. Many of this class are perpetually complaining of ill health and the expectation of an early death, but still live, and with wonderful tenacity of life, to the age of three score and ten years or older. I denominated this the vitally tenacious class, and Dr. HALL, by the epithet of "high dynamis," but neither is strictly correct, because a majority of those having a scrofulous diathesis belong to this class, and, generally, they do not live to be old. But those of this class who are exempt from any strumous taint have, usually, great tenacity of life, not unfrequently living a hundred years. The oldest individual I ever saw was of this class, and said to be one hundred and seventy years old, and the evidences of the fact, both physical and written, were to me conclusive of the fact. The individual was a negress, a native of Africa. The cornea of her eyes had a chalky opacity; her great toe nails projected beyond the toes three-fourths of an inch, and were half an inch thick, resembling the hoofs of an ass; her audition, however, was morbidly acute.

After making the preceding observations, about twenty-five years elapsed before I made any further note-worthy advance in this direction; but, in the meantime, I accumulated a cabinet of four hundred human crania, consisting of those of many

peoples. Upon one occasion, when in my cabinet, it became suggested to me that as a broad development of the brain indicated vigorous life, that, possibly, the depth of the brain might indicate tenacious life or high dynamis, and immediately proceeded to ascertain how the fact might be. I took from my cases two crania: one was that of a white man who had died of phthisis, and the other that of a white man who, in the vigor of life and health, was executed for murder. To the former I extended a small line from the occipital protuberance to the anterior inferior lateral angle of the os frontis, and found the space between the line and the meatus auditorius to be two-eighths of an inch. I applied the line in like manner to the latter, and found the space between the line and the meatus auditorius to be one inch and three-eighths. As the two crania were, in the abstract, of about the same size, it appeared to me that the remarkable difference between the two in the depth of the brain's base was, probably, significant of some important truth, and, hence, I resolved upon a more methodical course.

I placed on my table the crania of five white men who had died, respectively, of phthisis, and measured them as above indicated, and divided the sum of their measures by five, and found the average to be three-sixteenths of an inch. I replaced these five crania by five others of white men who died by mechanical violence, and measured them in like manner, and found their average to be an inch and three-eighths. From these measures, though but few, I could not doubt that the depth of the brain's base was, probably an index of longevity, —high dynamis. I had in my cabinet the crania of four suicides, and found their average to be within an inconsiderable fraction of that of the consumptives, and have since observed that those having a suicidal diathesis measure about as do those having a consumptive diathesis, hence, I have been forced to regard suicide as a normal death. It is, therefore, preposterous to enquire why any one committed suicide, for, at most, nothing more can be learned than the exciting cause, which very frequently is some very trivial circumstance, just as a very inconsiderable exposure of the person may excite a scrofulous diathesis into consumption.

I continued this course of investigation in my cabinet, as opportunities offered, for several weeks, to satisfy myself on many of the relations of the subject as they became suggested to me. I selected the crania of those who were, as nearly as possible, exclusively of high stimulus: in these I found the cerebellum and the base of the cerebrum to be broadly developed, but had but little depth,—all of them had died young. Amongst these was that of a Polish exile, it was the broadest in my collection. I knew him while living; he was, physically, a powerful man; his vital functions were manifested with great energy to the close of his life, which was by suicide; his brain had no perceptible depth; he lived out the last moment permitted by his organization; he was about 35 years old.

When the base of the brain is both broad and deep, the indication is a compound of the two conditions of high stimulus and high dynamis. This explains why some people of high stimulus live to be old. Of this compound constitution, General Scott is a fine example, and so was the notorious Aaron Burr. The late Professor Daniel Drake had but little of the high stimulus, and not more than a respectable portion of high dynamis, as he died at about the age of sixty-five years. The late Hon. John Randolph had less of the high stimulus condition than any other man I ever saw, but his dynamis sustained him to old age. A considerable portion of the high stimulus condition is indispensable to great action on the stage of life; and, hence, we find it to have been highly developed in Cæsar, Alexander, and Napoleon.

My cabinet investigations left me unable to doubt that longevity results from the downward development of the brain. Upon arriving at this conclusion, I directed my attention to society, and it soon became rumored that I had made a discovery by which I could tell how long a person would live. When this rumor reached the late Professor Evans, of the Ohio Medical College, he called on me and said:—"Professor Powell, I have learned that you have made a discovery by which you can tell how long a person will live; is it true, sir?" No, sir, I have not made such a discovery; but I have made one by which I

can tell whether a person will live a long or a short time; but even to this extent I am not confident, but am only so inclined to think. "Please to apply your discovery to me." Do you desire my candid opinion? "I do, sir." Then, sir, if I have made the discovery I think I have, you have but a short time to remain with us. "Oh! your discovery is all a humbug." What, if you please, is your definition of a humbug? "I did not mean that, but only you have not made the discovery you think you have." You are, possibly, correct, sir; for I have not arrived at a settled conclusion about it. The opinion I gave him proved to be correct, for in three years he was under the sod. I could present many very remarkable examples of my application of this discovery, but as they will avail nothing to my readers, I will pass on.

Early in this investigation, it became to me a question, whether this index of longevity decreased as age advanced or dissolution approached. From some observations, I was inclined to the affirmative, but, subsequently, some others inclined me to the negative; and, before I could settle the question, I became afflicted with hemiphlegia, which, in a great measure, arrested my observations. At the date of this discovery, my father was 78 years old, and his index of longevity was five-eighths of an inch; and, knowing him to have great tenacity of life, I was surprised to find his index so small, unless it had decreased, and only indicated the residue of his years. At all events, I resolved, if permitted, to watch it to the close of his life. On the 7th ult., he died at the age of 92 years, 1 month, and 20 days. I applied the line, and found no indication of longevity, which corresponded with the fact: he was dead; the line came down fully to the meatus. If I made no misapplication of the line, this case would be conclusive that this index decreases as age increases; having but one hand with which to manipulate, and the assistance of a child, I may, possibly have committed some error, though I repeated the measurement three times with the same result. But, before I conclude, finally, in the affirmative, I must have confirmation. Thus, I leave the question for others to settle.

Conceding that I have discovered the index of human longevity, the question arises, of what use is it to the medical profession? Not having had medical practice since making the discovery, my answer must consist of the evidence of those who have availed themselves of it in their practice. My observations, however, have forced upon me the conviction, that in the ratio of the index of longevity is the physiological power of the system to resist, contend with, and remove disease. Hence, it would be precedent for the physician to inform himself of the physiological ability of his patient to contend with disease; but more particularly should he have this knowledge before venturing a prognosis.

Nearly two years ago, Dr. Fox, of this city, now of California, made me a social call, and, in the course of conversation, he adverted to this discovery, saying:—"I obtained a knowledge of it from Dr. Fowler, of Cincinnati, who informed me that he acquired it personally from you; and such was his confidence in its verity that I was induced to give attention to it; and, upon becoming convinced of its truth, I resolved to make it available in my practice; and, for this purpose, I made a scale of a slip of a card and graduated into sixteenths of an inch, and attached one end of it to a line, so that when the line is adjusted, the scale depending over the meatus indicates the amount of the index. This little contrivance I always carry in my vest pocket. A few weeks since, I was called to see a sick child, about 4 years old. The case was phrenitis, and had been given up as irrecoverable by two physicians; and I found the case so hopeless that I resolved to do nothing without counsel, and sent to Cincinnati for a medical friend, in whose ability I had much confidence; but, while awaiting his arrival, I ascertained that the child's vital was six-eighths of an inch. As this was more than I had ever before seen in one so young, my inference was that he could not die but would rally and recover. My counsel arrived, examined the case, and said to me:—'We can do nothing in this case, the child will die.' 'No, sir,' said I, 'he will recover.' My friend rejoined:—'How can you think so when there is not even the fragment of a symptom in

his favor?' 'I grant, sir, that, according to all the lights of the professsion, your opinion is correct; and yet, sir, it is my conviction that he will rally and recover.' 'Please to give me the data of your confidence.' 'When the case shall have terminated I will; but, as my data is such that you cannot appreciate, I beg to decline at present.' Suffice it to say, in a week the child was up and playing with the other children. When I informed my friend that the child recovered, he was greatly amazed and demanded of me my promise. He had heard of your discovery, but knew nothing about it. When called to cases of much violence, and find this index as small as one or two-eighths of an inch, I inform the friends, before I do anything, that the case will result fatally; and in no instance of the kind have I been disappointed. I think this discovery to be of great value to the physician."

In conclusion, I beg leave to introduce another witness. Something less than a year ago, a professional friend of the author made to him the following report:—"Ever since the announcement of your discovery of the index of human longevity I have directed my observation to it, and long ago reached the conclusion that it is a reality. A few months since, Professor ——— was required to extirpate an unusually large ovarian tumor, and solicited my assistance. It was granted; and, at the appointed time, I was with him; saw the lady; examined her index of viability, and found it to be as low as three-sixteenths of an inch; and, hence, I inferred that she would not, probably, live to recover from the operation, and so informed the Professor. 'Why,' said he, 'her physiological condition is very good.' I rejoined:—'That may be, but she has not physiological ability enough to recover from such a lesion as the extirpation of the tumor will require. He requested the data of my opinion. I gave it. He rejoined:—'Is not that Powell's pretended discovery?' 'It is, sir; but I do not hold Dr. Powell or his discovery responsible for my opinion. His discovery served to guide me; but I have made a knowledge of it as much my own as it is his; my opinion, therefore, is exclusively my own.' He operated, and did it well; and, for a time,

the lady appeared to do as well as could have been expected under the most favorable circumstances,—but she did not live to recover from the operation.

Any person may in an hour become satisfied of the probable truth of this discovery, by comparing this index of those having a scrofulous diathesis with that of those who have a sound constitution.

When this index is as much as an inch, at or about adult age, there is a reasonable chance of life to four score years; when an inch and a-quarter, five score years, &c.

ARTICLE XXXI.

LECTURE INTRODUCTORY TO THE FIFTH ANNUAL COURSE OF INSTRUCTION IN THE CHICAGO MEDICAL COLLEGE, MEDICAL DEPARTMENT OF LIND UNIVERSITY, DELIVERED OCTOBER 12TH, 1863.

By N. S. DAVIS, M.D., Professor of Principles and Practice of Medicine, and of Clinical Medicine.

STUDENTS AND CITIZENS:—By the arrangements of the Faculty of this Institution, it is made my duty to open the present term of instruction with a formal address.

Just four years have elapsed since I had the pleasure of delivering the introductory lecture to the first course of instruction given in this College. As that occasion marked an era in the progress of medical education in this country, by introducing into the system of American medical college instruction a principle of great practical importance, I then deemed it proper to notice briefly the opinions and action of some of the most eminent members of our profession, in relation to the defects in the general system of medical education, and the paramount importance of correcting them; and as the completion of the new and commodious college edifice in which we are now assembled, marks an important step in the progress of the experi-

ment inaugurated four years since, I shall offer no apology for recurring briefly to the same general topic that engaged our attention on that occasion.

It was then shown that the principles involved in the plan of organization and system of instruction adopted by the founders of this Institution, were neither new nor the invention of some eccentric or over-zealous medical reformer; but that they had been practically interwoven with the systems of medical education in every country on the Continent of Europe; and that they had been clearly pointed out and advocated by many of the ablest teachers and writers in America for more than twenty years past. Indeed, they are principles fully recognized and acted upon in this country, in all departments of education, except that which occurs in the medical schools. They are—

1st.—Such an arrangement of the several courses of lectures, comprising the annual college term, as will enable the student to restrict his attention, first, to the more elementary branches of medical science, and subsequently, to advance to the practical. Thereby making his medical college instruction progressive, as in all other institutions of learning, and not merely repetitional.

2d.—Such an increase in the number of professorships, and in the length of the annual college term, as will enable the faculty to include in each term a full review of all the important branches of medical science.

3d.—Such connection with hospitals as will make hospital clinical instruction an integral part of the regular college course, thereby making the instruction in the departments of practical medicine and surgery as fully demonstrative as in those of anatomy and chemistry.

For more than thirty years, the profession, through its representative men and through its State and National organizations, has urged such changes, in the organization and courses of instruction in the medical colleges, as would make them conform substantially to these propositions. Thus, the profession of Ohio, assembled in convention at Columbus, in January, 1838, discussed and adopted the three following resolutions, viz.:—

"*Resolved*, That, in the opinion of this Convention, the

the lady appeared to do as well as could have been expected under the most favorable circumstances,—but she did not live to recover from the operation.

Any person may in an hour become satisfied of the probable truth of this discovery, by comparing this index of those having a scrofulous diathesis with that of those who have a sound constitution.

When this index is as much as an inch, at or about adult age, there is a reasonable chance of life to four score years; when an inch and a-quarter, five score years, &c.

ARTICLE XXXI.

LECTURE INTRODUCTORY TO THE FIFTH ANNUAL COURSE OF INSTRUCTION IN THE CHICAGO MEDICAL COLLEGE, MEDICAL DEPARTMENT OF LIND UNIVERSITY, DELIVERED OCTOBER 12TH, 1863.

By N. S. DAVIS, M.D., Professor of Principles and Practice of Medicine, and of Clinical Medicine.

Students and Citizens:—By the arrangements of the Faculty of this Institution, it is made my duty to open the present term of instruction with a formal address.

Just four years have elapsed since I had the pleasure of delivering the introductory lecture to the first course of instruction given in this College. As that occasion marked an era in the progress of medical education in this country, by introducing into the system of American medical college instruction a principle of great practical importance, I then deemed it proper to notice briefly the opinions and action of some of the most eminent members of our profession, in relation to the defects in the general system of medical education, and the paramount importance of correcting them; and as the completion of the new and commodious college edifice in which we are now assembled, marks an important step in the progress of the experi-

ment inaugurated four years since, I shall offer no apology for recurring briefly to the same general topic that engaged our attention on that occasion.

It was then shown that the principles involved in the plan of organization and system of instruction adopted by the founders of this Institution, were neither new nor the invention of some eccentric or over-zealous medical reformer; but that they had been practically interwoven with the systems of medical education in every country on the Continent of Europe; and that they had been clearly pointed out and advocated by many of the ablest teachers and writers in America for more than twenty years past. Indeed, they are principles fully recognized and acted upon in this country, in all departments of education, except that which occurs in the medical schools. They are—

1st.—Such an arrangement of the several courses of lectures, comprising the annual college term, as will enable the student to restrict his attention, first, to the more elementary branches of medical science, and subsequently, to advance to the practical. Thereby making his medical college instruction progressive, as in all other institutions of learning, and not merely repetitional.

2d.—Such an increase in the number of professorships, and in the length of the annual college term, as will enable the faculty to include in each term a full review of all the important branches of medical science.

3d.—Such connection with hospitals as will make hospital clinical instruction an integral part of the regular college course, thereby making the instruction in the departments of practical medicine and surgery as fully demonstrative as in those of anatomy and chemistry.

For more than thirty years, the profession, through its representative men and through its State and National organizations, has urged such changes, in the organization and courses of instruction in the medical colleges, as would make them conform substantially to these propositions. Thus, the profession of Ohio, assembled in convention at Columbus, in January, 1838, discussed and adopted the three following resolutions, viz.:—

"*Resolved*, That, in the opinion of this Convention, the

sessions of the different medical schools throughout this Union are too short, and that they ought to be extended one month, and the students required to stay to the end of the term.

"*Resolved*, That the number of professorships is too few, and that ampler provision be made for teaching physiology, pathological anatomy, pharmacy, medical jurisprudence, &c.

"*Resolved*, That, if practicable, our medical schools should be so organized as that students, in their first course, should have their attention chiefly directed upon special anatomy, physiology, chemistry, pharmacy, and other elementary branches; and, their second, upon pathological anatomy, therapeutics, the practice of physic, surgery, and obstetrics."

In the *Western Journal of Medical and Physical Sciences*, for March, 1838, we find the following comments on these resolutions, by the late Dr. DANIEL DRAKE, than whom no higher authority could be quoted on such a subject. He says: "Their first resolution, however, contains suggestions in which every reflecting member of the profession must concur. That the lecture terms in all the schools in the Union are too short, is undeniable. * * * * The second resolution furnishes a strong argument in support of the first, and ought, indeed, to have preceded it in the series. It looks directly to the limited range of studies prescribed and pursued in nearly every school in the Union. Indeed, we may affirm, that there is not one in which the cycle is as comprehensive as the nature of the medical profession demands." Referring to the third resolution, Dr. DRAKE continues: "It is not only absurd, but actually injurious, for the student who has recently commenced the study of medicine, and is not yet acquainted with the structure and functions of the body, with chemistry, or the rudiments of botany, or zoology, to engage the high and difficult inquiries of pathology and practical medicine; and, in the present organization of our schools, this is constantly done. The *beau ideal* of collegiate medical instruction would be for students, in their first course, to devote themselves to anatomy, special, general, and pathological, with dissections; to physiology, corporeal and mental; to chemistry, pharmacy, and the classification of

medicines; and to so much of the history of the mineral, vegetable, and animal kingdoms as is necessary to the due understanding of the two last; and, in the second session, to give their chief attention to therapeutics, symptomatology, ætiology, practice, surgery, and obstetrics. * * * * * It is to be feared, however, that for a long time to come our brethren, who do not live in the immediate neighborhood of medical schools, will think, or at least act, differently from what is here advised; and, equally to be apprehended, that those who prescribe the policy of our institutions will neglect the establishment of junior and senior classes."

If the resolutions adopted by the Ohio State Medical Convention, and the comments of Dr. DRAKE, were just, as applied to the inadequacy of the schools, compared with the wants of the profession, twenty-five years ago, what shall we think of those schools that still adhere to the same annual college term of *sixteen weeks*, with six or seven professorships, while the actual field of investigation, requiring the careful attention of the student, has increased, at least, thirty per cent?

From the date of the Ohio State Medical Convention, to which we have alluded, to 1845, the subject of improving the system of medical college instruction in this country was frequently discussed in the several State Medical Societies. It was at the close of a protracted discussion of this subject, in the annual meeting of the New York State Medical Society, held in February, 1845, that a call was issued for a national convention of delegates from all the medical societies and colleges in the United States, for the special purpose of adopting measures in concert among all the schools. It was in response to this call, and mainly for the purpose of advancing the cause of medical education, that the American Medical Association was organized and has been vigorously sustained to the present time.

At the second annual meeting of that Association, held in Boston, May, 1849, the Standing Committee on Medical Education, of which Dr. F. CAMPBELL STEWART, of New York, was Chairman, made a lengthy and able report, in which the systems

of medical education, both in Europe and America, were carefully reviewed. After thus reviewing the whole subject, and showing the great necessity of longer college terms, better preliminary education, and more system in the order of studies, the committee presented the following distinct recommendation, viz.:—"We think much might be gained by a division of the subjects taught into two classes; one series of which might be studied during the first course of lectures, and another during the second year's attendance. The anatomy and dissections, together with chemistry, materia medica, pharmacy, and physiology, might be studied during the first session; at the close of which, examinations should be held, and certificates of acquirement given. During the second session, the subjects of surgery, practice of medicine, midwifery, and hospital attendance, with a continuation of the study of anatomy, might be insisted on. This, we think, would be a decided improvement upon the present plan, which requires attendance on all the branches during both sessions, and does not permit the student time to prepare himself thoroughly on any one of them. We urge your close attention to this proposition, which we hold to be important, and which we think would be found to work well."

In a report made at the same meeting of the American Medical Association, by a committee appointed to consider, specially, the propriety of increasing the length of the annual college terms, we find the following explicit statement:—

"The plan of four month courses of lectures belongs to the origin of medical schools in this country, and arose out of the necessities of the case. The establishment of medical lectures at all was a bold innovation; and, lest it might act as a discouragement to students, the term was made as short as possible, and limited to four months. And yet, at that time, medicine had but a moderate expansion, and scarcely made pretension to a scientific character. Since the first establishment of the medical schools, the field of medical science has changed its entire aspect. The new departments that have been developed, exceed in extent, and equal in importance, the rudimentary branches forming the original scheme of medical education.

They embrace what may be correctly designated the higher and scientific branches of education. To include them with the original courses, in lectures of four month's duration, *is wholly impossible.*"

Similar sentiments have been expressed, and corresponding changes urged upon, the attention of the schools, by able committees, at almost every meeting of the Association up to the present time. But plain as are the principles of medical education already enunciated, and urgent and numerous as have been the appeals of the profession for their practical adoption by the schools, it was not until the organization of this Institution, in the autumn of 1859, that there was any attempt to carry them fully into effect in this country.

It is true, that many of the schools had so far yielded to the demands of the profession as to add two or three weeks to the length of their college terms, and one or two chairs to the number of their professorships. In two institutions, in which the professorships were endowed with permanent salaries, the annual terms were extended to six months or more, but the number of professorships was diminished rather than increased; and in none had there been an attempt to incorporate the all-important principle of arranging the various branches into junior and senior departments.

Under these circumstances, the Faculty of this Institution, some of whom had long been indentified with the efforts to improve the whole system of medical education in this country, determined to encounter all the dangers attendant on the abandonment of long-established customs, and at once deliberately enter upon the experiment of establishing a medical college, founded on sound educational principles and, in all respects, fully equal to the demands of the profession. They adopted a regular annual lecture term of five months, with the addition of a free summer reading and clinical term of four months. They increased the professorships to thirteen, dividing the branches taught into two series,—in such a way that the junior students could restrict their attention to the first or more elementary series, and the senior students to the more

practical; thereby not only enabling the student to make his several courses of lectures progressive instead of repetitional, but also enabling him, during the whole period of his college attendance, to receive thorough instruction over a field of medical sciences twice as extensive as that covered in the ordinary college courses. They instituted daily examinations of the classes, and thorough general examinations of both junior and senior classes at the close of each lecture term. Hospital clinical instruction, both medical and surgical, was incorporated as a part of the regular college course. In a word, they boldly attempted to establish, practically and fully, what Dr. DRAKE had so happily described as "the *beau ideal* of collegiate medical instruction."

The enterprise was certainly not without obstacles and discouragements. An established medical college already existed in the city, with its alumni distributed throughout the whole North-West; and we were told that the patronage would not be sufficient to sustain two schools. Again, we were told that students could not be induced to attend a lecture term of five months, while another school in the same locality required an attendance of only sixteen weeks. It required only an accurate knowledge of the advantages of this city, as the natural centre of a vast territory, and including within itself, if properly developed, all the facilities for instruction in every department of medical science and art, to see that the first objection was entirely fallacious; and the force of the second could be tested only by actual experiment. Four years have now elapsed since this Institution, organized in the manner already indicated, began its career in rooms temporarily fitted up, not as facetiously remarked by an enemy of the enterprise, in the "loft of a warehouse," but on the third and fourth floors of an elegant block of buildings on Market street. The number of students attending the first annual lecture term was 33; the second 54; the third 63; and the fourth 81. Thus in the short period of four years, attracting a larger class than the old and justly celebrated medical departments of Yale or Dartmouth; and equal to the classes in one-fourth of the schools in the Union.

During the same period of time, by careful attention to the pecuniary income of the Institution, a museum has been filled with every needed means of illustration; a chemical laboratory, supplied with all the apparatus required in both departments of chemistry; and a library stored with more than one thousand valuable medical volumes. And, this evening, at the commencement of the fifth annual lecture term, instead of climbing three long flights of stairs to reach temporary lecture rooms, we are assembled in a new and permanent College edifice, admirably arranged for the work for which it was designed. On the first floor, is a library and dispensary room, a chemical laboratory, and the spacious lecture room in which we are now assembled. On the second floor, is a beautiful museum, and an anatomical and surgical amphitheatre. On the third floor, are the well-lighted and ventilated rooms for practical anatomy. All this we have, with a pecuniary encumbrance remaining of only six thousand dollars, payable in ten equal annual instalments.

Such, gentlemen, is a candid, though brief, statement of the origin, plan of organization, progress, and present condition of the CHICAGO MEDICAL COLLEGE, constituting the Medical Department of Lind University.

And here, while substantially dedicating this edifice to the great work of advancing the noblest of sciences; the science of alleviating human suffering and of prolonging human life; I take great pleasure in congratulating you, together with my colleagues in the Faculty, on the marked success of our enterprise thus far, and still more on the bright prospect that is opening upon the future. This pleasure is greatly enhanced by the fact, that our success has not been achieved at the expense of the medical school previously established in this city. On the contrary, her faculty has been stimulated to increased exertions, resulting in a corresponding increase in the number of students in attendance on their instructions. Hence the establishment of this Institution has already caused the aggregate number of medical students resorting to this city for college instruction to be more than doubled; while the hospitals and dispensaries, affording ample material for clinical instruc-

tion, have been enlarged and multiplied; and the means of illustration, in all the departments, have been greatly increased. Such has been, and such will ever continue to be, the effect of an enlightened and honorable competition. But, gentlemen, it is proper for me to remind you, that no medical college organization, however complete, can insure the development of accomplished and skilful physicians and surgeons, without the patient, well-directed, and earnest application of the student, during the whole period of his pupilage. The field of medical science, or more properly speaking, the field of sciences contributing directly or indirectly to a knowledge of the nature, causes, prevention, and cure of diseases is almost boundless. Some of its departments embrace the most intricate and intensely interesting problems in nature; requiring for their comprehension a mental discipline, a quickness of perception, and an intensity of application, which can be acquired only by close and protracted study. Permit me, then, to caution you against three errors, very prevalent among those persuing the study of medicine. The first is *haste*, or a desire to complete the period of pupilage in the shortest possible time.

Haste is said to be a national characteristic of Americans; and in no department of life is it exhibited more prominently than among medical students.

In Europe, the period of medical study required before becoming a candidate for graduation varies from four to seven years; while in this country, the rules of the profession and the laws of many of the States have fixed the period at three. And yet, short as this latter period is, when compared with the nature and extent of the studies required, there are many young men who manifest great anxiety to have it reduced still further; and not a few, who actually commence prescribing for the sick before they have read medical works eighteen months, or have gained even a superficial knowledge of anatomy, chemistry, and physiology.

Such haste to assume the practical duties and responsibilities of the profession, is not merely trifling with the highest interests of the sick, but it is a serious and permanent injury to the

man who indulges it. In the first place, by commencing thus early to practice, his attention is necessarily absorbed in the efforts to procure formulæ or prescriptions for particular diseases, before he has any adequate knowledge of their pathology; or even of the *modus operandi* of the medicines he prescribes. Hence he speedily, and almost necessarily, glides directly into a purely empyrical or routine system of practice, without any other foundation than the *ipse dixit* of his preceptors and his books. Again, the failures and errors he almost necessarily commits while thus imperfectly educated, greatly retards the acquirement of that public confidence which is essential to professional success. Indeed, many are the cases in which the errors committed in premature efforts to practice, have cost half of the individual's subsequent professional career to outlive. As a mere matter of self-interest, therefore, no young man should allow himself to be hurried into the practical duties of the profession, by shortening the necessary period of study, or by passing hastily over the more fundamental branches of medical science.

The second mischievous error, committed by many of those who enter upon the study of medicine, is the neglect of mental discipline and of any adequate amount of preliminary education. Without having the mind trained to processes of reasoning, or habituated to the observation and comparison of facts and the logical deduction of conclusions therefrom, they enter, at once, upon the intricate and complex study of the structures and functions of the human system, with all the modifying influences of external agents on it. The living human body involves in its organization and functions almost every law or principle embraced in natural philosophy, chemistry, and physics; while a proper appreciation of the action of exterior agents on the animal economy, necessarily involves a knowledge of the facts of meteorology, geology, natural history, and physical geography; yet how large is the proportion of young men who commence their professional study, not only without the slightest knowledge of any of these branches of general science, but without even a respectable knowledge of English grammar and

penmanship. We do not deny but that some of those, who have thus commenced, have ultimately attained a high degree of professional skill and an honorable position among their fellows. But they constitute the very few on whom nature has bestowed her choicest mental endowments; and who, consequently, would rise superior to all obstacles, however protracted and painful the task might be. Yet, even these few uniformly acknowledge that the deficiencies in their general education constituted a continual source of embarrassment, until actually supplied by eading and study, pursued at great disadvantage during hours snatched from the active duties of practice, and which should have been devoted to the cultivation of the higher and more intricate departments of medical science.

These same deficiencies, however, which constitute only impediments and annoyances to the progress of a few of the more highly gifted, stand as permanent and insuperable barriers to the progress of the many. With no independent knowledge of the natural and physical sciences, they can comprehend but imperfectly the application of the facts and laws of those sciences, in the elucidation of the causes of disease, and the nature and *modus operandi* of medicines; much less have they any basis on which to found new observations, or even to appreciate the value and bearing of such as may be forced upon their attention in the daily routine of life; and, if added to this, they have so limited a knowledge of language and literature, as to hinder them from freely expressing their views on paper, they must necessarily go through their whole professional career, as mere *prescribers* for the sick, neither satisfied with themselves, nor conscious of having made the world either wiser or better for their having lived in it. I know we are often told that all cannot become great or eminent in the profession. If by this it is meant that all cannot obtain official positions in connection with colleges and organized institutions, it is certainly true. If, however, there are not professorships or offices enough to accommodate the whole profession, it does not follow that each member may not attain a degree of professional skill and learning which would make him competent to fill any position. A

contemporary, while discussing this topic recently, comforted his audience with the assurance, that if only here and there one could attain eminence, the rest could remember that the *tall* oaks of the forest were the first to be riven by the lightning and the storm, while the lower and more obscure trees escaped unscathed.

Notwithstanding the abstract truthfulness of this figure, I think all will agree that a forest made up of stately oaks would be far more magnificent and valuable, than one chiefly composed of underbrush and saplings, with only here and there a majestic tree.

The third error, against which I wish to guard you on this occasion, consists in regarding the practice of medicine and surgery as a mere business calling, to be pursued like the various branches of commerce and the mechanic arts, simply for the pecuniary profits resulting therefrom. I do not here intimate that it is an error to receive pay for medical services. On the contrary, it is the duty of every practitioner to exact a fair compensation for his services, in all cases where the patient has the means to render it. But the error to which I allude, lies in a different direction. For instance, a very imperfectly trained mechanic may build a barn or a plain house, and receive compensation in proportion to the style of his work. Or an unskilful artisan may produce a fabric of very inferior quality, and sell it for a corresponding price; and no wrong is done to his patrons. So in all ordinary business pursuits, the varying conditions of men in society, require the exhibition of various degrees of skill with corresponding degrees of perfection in the products and results of labor. But the practice of medicine differs in two essential particulars from all other business pursuits. The first is, that every practitioner, whatever his qualifications may be, has to deal with the diseases and derangements of the same complex, intricate, and sensitive mechanism which we call the living human body. He cannot, like the mechanic, choose a subject to practice upon, whose organization is so simple as to be readily understood by a half-educated mind. On the contrary, whether educated or uneducated, skilful or unskilful, it

is the same delicate, living, sensative organization with which he has to deal. Whether clothed in rags or in silks, it is the same human form divine; the last, most complex, and most beautiful of the Creator's works.

The second difference consists in the fact, that the results of the physician's labor affects not merely the pecuniary interests and conveniences of his patients, but their health, their happiness, and their lives. The merchant may sell us a fabric we do not like, but it can be laid aside or returned, and another procured in its stead. So an unskilful architect may plan a very inconvenient house, and another may correct his errors. But a lung disorganized through ignorance of the attending physician, or a limb sacrificed by an unskilful surgeon, cannot be restored or replaced, by the highest degree of human skill. Hence, from the very nature of the organization with which the physician has to do, it is evident that the practice of his profession, differs from all ordinary pursuits. And the all imimportant truth, which I wish to impress indelibly upon your minds, here, at the very threshold of your professional career, is that you are under the highest moral obligations to so qualify yourselves, individually, as to afford every patient coming under your care, all the advantages which the present state of medical science and art is capable of affording. The question kept perpetually before your consciences, should be, not merely whether you have studied a certain number of years; or can pass an examination for a diploma; or are as well qualified as Dr. A. or Dr. B.; but whether you have so completely mastered all the facts and principles embodied in the various branches of medical science, and acquired such a degree of mental discipline as will enable you, promptly, to apply these facts and principles, with the highest attainable degree of skill, in the relief of human suffering?

Having thus explained to you the principles on which this Institution is organized, and the facilities it will afford you in the pursuit of medical knowledge; having cautioned you against undue haste in assuming the duties and responsibilities of practice; having pointed out to you the inconveniences and

often fatal effects of neglecting a suitable preliminary education; and having placed clearly before you the practical standard of acquirements at which you should aim, it only remains for me to welcome you to the halls of this Institution; to its lecture rooms, its dissecting room, museum, library, dispensary, and the wards of the Hospital so closely allied to it. To all these, in behalf of the whole Faculty, I cordially welcome you; and freely pledge to you our most zealous efforts to facilitate your progress in the laborious and important work you have before you. In choosing the profession of medicine, you have, individually, assumed a high responsibility.

In your future lives, you will not only be in continuous conflict with disease and the grim monster, death, but you will be admitted to the inner circles of human society; to the fireside and the bedchamber of the rich and the poor; to the secrets of the vicious and the virtuous; to the sacred confidence alike of husband, mother, and daughter. Hence, it becomes you to sedulously cultivate all those qualities of head and heart, that characterize the true gentleman, the polished scholar, and the unswerving and incorruptible moralist.

If you faithfully and perseveringly heed these admonitions, you will not only attain a satisfactory and honorable position in the profession of your choice, and gladden the hearts of the afflicted at the sound of your footsteps, but you will be enabled to live in the enjoyment of the highest and purest degree of human happiness, the consciouness of having alleviated the sufferings and prolonged the lives of those around you.

ARTICLE XXXII.

IMPROVED METHODS OF TREATMENT IN DEFORMITIES.

By E. ANDREWS, A.D., M.D., Professor of Surgery in Chicago Medical College.

In a former number, I gave an account of several improved methods of treatment in joint and spinal diseases. A number of important points were necessarily omitted in that essay for want of space. This article is designed to make good the deficiency. We will first consider the subject of

ANCHYLOSIS OF THE KNEE.

This condition results from inflammation, in consequence of which plastic lymph is effused upon the articular surfaces, causing them to adhere firmly together and prevent all motion. In a few cases, the cartilages are removed by ulceration, and a bony union is formed. Authors commonly distinguish the two forms, as *false* and *true anchylosis*. The word anchylosis, however, as taken from the Greek, is equally applicable to both forms; and the use of the adjectives *false* and *true*, in such a connection, is awkward and ungraceful. *Anchylosis*, in Greek, simply refers to the bent or hooked form which stiffened limbs generally assume, and has no reference to the presence or absence of bony deposits. I prefer, therefore, to divide the affection into *fibrous* and *bony* anchylosis, rather than into *false* and *true*. Practically, the bony form is rarely found, ninety-nine cases out of a hundred being of the fibrous variety. During the inflammatory stage, the patient seeks a partial relief of his pain by placing the limb in a flexed position; hence, we usually find the knee not only stiff, but flexed at an angle, or even an acute angle.

There are two objects, therefore, to be gained by the treatment: first, to straighten the limb so that the foot may be brought to the ground; and, secondly, to restore the mobility of the joint. The resistance to the straightening process, in fibrous anchylosis, is maintained by three tissues, viz.: the flexor

muscles and tendons, the shortened ligaments, and the new fibrous tissue connecting the inner faces of the joint to each other. All these obstacles will yield to steady tension; and, if the patient and surgeon think best, the limb may be perfectly straightened without any operative procedure.

In all the more difficult cases, however, the flexor tendons oppose so much resistance that it is, practically, much the best to divide them at the outset with a tenotome. We have then simply to overcome the resistance of the shortened ligaments and of the new tissue in the anterior of the joint. For this purpose, extend the leg until the tendons of the hamstrings are quite tense, and then divide them, taking care to avoid the peroneal nerve by the tendon of the biceps. The patient should be well under the influence of an anæsthetic; and, after the tendons are severed, moderate efforts may be made to straighten the limb by force. Great violence, however, should not be used, as serious and even fatal results have followed such a course. If the adhesions refuse to yield to a moderate force suddenly applied, we must next resort to gradual extension.

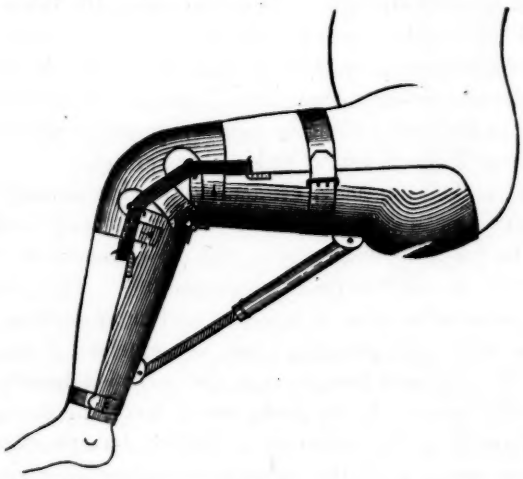

Fig. 1.

For this purpose, I use the instrument shown in Fig. 1. This

consists of a half-armor, covering the posterior portion of the limb and extending from the ankle to the middle of the nates. An extension-brace, formed by a tube and a screw, passes across the angle, for the purpose of applying a powerful force in obstinate cases; but, in more tractable limbs, the brace is removed, and the force obtained by means of the strong rubber springs on either side of the knee, attached to the upper edges of the apparatus. The knee must be kept in by a cloth knee-cap firmly strapped down, and the leg and thigh bound in by a band or two of cloth or of adhesive-straps. The principle of this splint has been in use a long time, but one or two points are new. The prolongation of the thigh-piece upward upon the nates is to get a firm bearing upon the ischium so as to avoid pressing the upper end upon the sciatic nerve, which is apt to occur in the old form figured in the text-books. Care must be taken that the edge of the instrument on the outer border of the knee does not press upon the peroneal nerve and paralyze the dorsum of the foot. If the brace is used for extension, the nut must be tightened a little three or four times a day, until the joint is quite straight. In milder cases, the brace may be removed and rubber springs left to work alone, simply being tightened a little once in three or four days. The best material for construction is sheet-brass; but, if preferred, ordinary sheet-tin will answer, and a common tinner can construct every part of it, except the nut, screw, and rubber springs.

The straightening may be accomplished commonly within two months, meanwhile daily motions of extension and flexion should be made as diligently as the sensitiveness of the joint will permit, in order to restore the mobility. This restoration of the power of motion is a slower and more tedious process than the mere straightening; but, nevertheless, if the passive exercise is continued long enough, the result is tolerably certain in favorable cases. If the anchylosis is bony, the straightening is still possible in the same way as before; but, practically, the difficulties are so great that operative interference is preferable. A wedge-shaped piece of bone may be removed in such instances, and the leg then brought down.

If the anchylosis has occurred during early childhood, with so much flexion that the foot cannot be used, atrophy takes place, and the hope of restoring a useful limb, in adult life, is sometimes futile. If the leg is a serious encumbrance, in such cases amputation must be performed.

TREATMENT OF TALIPES WITHOUT TENOTOMY.

In my former article, I referred to the fact, that nearly all cases of talipes may be cured without cutting the tendons, and that some surgeons have ceased to perform that operation in ordinary cases. As the dressings required for this mode of treatment are more easily understood by the help of an engraving, I have had a cut prepared for the sake of illustrating my meaning, and may be excused for repeating the substance of the former explanation of their application. The fundamental maxim in these cases is this: *Every distorted joint may be made to return to its normal position by steady and long continued traction.* The principle of the management of talipes without tenotomy is, therefore, very simple; but the successful application of it depends upon the patience, faithfulness, and ingenuity of the surgeon. There are also a few instances where the practical difficulties render the principle inapplicable. The appliances must be prepared by the surgeon for each particular patient, and varied to suit the peculiarities of the case; and the materials for them consist mainly of adhesive-plaster and elastic webbing. The following description may serve to convey the general idea. We will suppose it to be a case of talipes varus. The first thing to be done is to secure two firm points of traction, which will not hurt the patient. For the first, we envelope the foot in bands of adhesive-plaster, carefully adjusted, bringing their free ends under the sole and up the

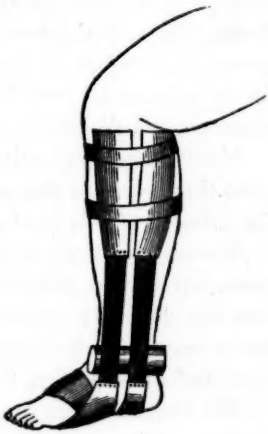

Fig. 2.

outer side. They are there gathered in one, two, or three groups, or sometimes all attached to a small rod running parallel to the outer border of the foot. The second point of tension is easily made by attaching broad adhesive-straps to the upper part of the outer side of the leg. It is convenient to arm the lower extremities of these with light buckles. The upper and lower adhesive-straps are now connected by from one to three strips of elastic webbing, which, of course, pass over the outer maleolus and tend to draw the foot to its position. A small cushion should be placed upon the maleolar region to receive the pressure of the bands. Thus prepared, let the elastics be buckled to a very gentle tension for the first few days, until the skin becomes accustomed to the presence of the apparatus, after which, they may be gradually tightened. The tension being moderately kept up day and night occasions very little pain, and the contracted parts slowly yield until the foot assumes a perfect position. Many weeks are often consumed in the treatment; but if the parents are intelligent, the surgeon need not see the child very often after the first twelve days.

Many other applications of these principles will readily suggest themselves to the ingenious practitioner, but which cannot be detailed in this brief essay.

We may truly say that, for those afflicted with spinal curvature, hip-disease, inflammation of the knee, or club-foot, a new era has dawned; and vast numbers of cases, supposed by our predecessors to be hopeless, will, in our day, be restored to soundness and perfect form.

The engraver has, in the above cut, misrepresented the malleolar cushion, causing it to look like a roller of solid wood. Of course, no one will be misled by the error. A good club-foot shoe can be made to accomplish the cure, but not so easily as the elastic bands.

BOW-LEGS.

One of the most difficult and vexatious deformities ever brought up for treatment is bow-legs. It is caused by rickets, in some instances, and in others by too early efforts of the child to walk, by which the tibia is flexed with the convexity out-

ward, and the whole limb assumes a bow form. The principal curvature is usually at the point where the upper part of the tibia joins the epiphysis. There is often a slight degree of this deformity in young children, which disappears without treatment before the child reaches the fourth year of its age; but in more aggravated cases, it continues and constitutes a permanent blemish. After a variety of troublesome experiments, I have devised the apparatus represented in Fig. 3, which answers the purpose perfectly. A spring-steel band passes partly around the waist being left open in front where the vacancy is filled by straps and a buckle. On each side a projection of the steel extends downward until it overlaps the trochanter major. To each projection a steel strap is articulated, extending downward to the knee, and carrying an armor which embraces the outer half of the thigh. At the knee another strap articulates with a similar half-armor for the outer side of the leg. A narrow piece of armor is also made to fit the inner side of the leg. The joints of the instrument must be made to come accurately opposite the hip and knee joints; and those opposite the knee, while they move easily backward and forward, must firmly resist any lateral flexion. For this purpose, the rivet must have a broad strong head. The whole must be nicely covered and padded. If now the band is buckled around the waist and another be passed around the middle of each thigh, it will be found that while the limb applies very well, as far down as the knee, it there leaves the armor and curves inward. The proper pieces must now be placed along the inner side of the leg, and, by means of straps and buckles, be drawn outward towards the outside pieces. The spring of the steel keeps up a constant elastic tension; and, by daily tightening the straps, the limb will be slowly brought back to a perfect form.

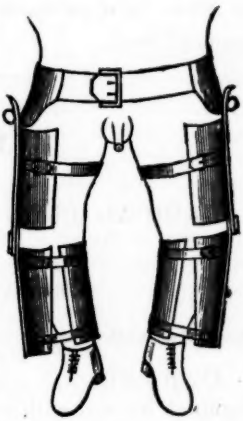

Fig. 3.

Care must be taken not to apply the straps too tightly at first, otherwise the skin will abrade and ulcerate, and the whole treatment be delayed. It will be sufficient if, during the first ten days, the instrument be worn very lightly,—just pressing enough to accustom the skin to its presence, after which, it can be made to draw more powerfully, until the object in view is accomplished.

Selections.

RADICAL CURE OF CONGENITAL INGUINAL HERNIA.

By DAVID W. CHEEVER, M.D.

[Read before the Boston Society for Medical Improvement, Sept. 28th, 1863, and communicated for the Boston Medical and Surgical Journal.]

About six months ago, I operated on three cases of congenital inguinal hernia, with a view to attempt a radical cure. All were boys of from eight to twelve years of age. One case failed at the outset, ulceration having taken the place of the adhesive inflammation which was hoped for. The other two succeeded; and are thus far, six months after the operation, well. I should have preferred to wait until a year had elapsed before bringing these cases to the notice of the Society; but finding that one of the cases had moved away from the city, and fearing to lose sight of the other, I have brought him here to-night, to show the result of Wood's operation, and will exhibit him to the Society. Before doing so, it may be best to read a short account of the operations. The boy who has moved away was operated on by Gerdy's method; the other, by that of Mr. John Wood, of London, which consists in placing subcutaneous sutures around the inguinal canal.

Case I.—Daniel S——, a healthy boy, 8 years of age, has a congenital ingenital hernia on the right side, as large as a hen's egg, when in the scrotum. The ring admits the forefinger with ease. The cord, testis, and spermatic plexus of veins are healthy. He has worn a truss, but latterly has been unable to keep the hernia up with it, and has left it off.

March 21st.—The bowels having been cleared, and the bladder emptied, he was etherized, placed on his back, the hernia

reduced, and kept up by the finger of an assistant pressing over internal ring. The skin of the scrotum was invaginated into the the inguinal canal, and with the cord lying beneath the back of the finger, the inner pillar of the aponeurosis of the *external oblique* muscle and the conjoined tendon of the *internal oblique and transversalis* were raised upon the tip of the finger, about half an inch above the *pubes*. A curved needle armed with a silver suture was now entered over the tip of the finger from above the *pubes*, carried through the conjoined tendon, inner pillar and invaginated scrotum, and thence out below the *pubes*, where the invaginating finger was first entered. The needle was now detached, and then, threaded anew with another wire, it was entered from below, passed by the outer side of the finger through Poupart's ligament, and thence across the inguinal canal, emerging at the same point above the *pubes*, where the first suture entered. The four ends of the silver suture were then passed through two holes of a large button, and clamped pretty tightly over it. The boy now vomited and strained violently from the ether, but the hernia did not come down. He was now put to bed on his back, and an opiate administered. He remained strictly in the horizontal posture, and the wound was kept wet with cold water. With the exception of some pain and tenderness over the abdomen, accompanied with but little fever, everything went on well for three days.

March 24th.—He was given some castor oil. In the night he got up unperceived, walked to the water-closet, had a large evacuation, and sat and strained a long while. Severe orchitis now supervened, which ran a course of about a week, and then gradually subsided. It was treated with cold applications and opium. There was a good deal of purulent discharge around the sutures, and a sinus opened above the *pubes*. But the sutures held on; there was no descent of the intestine, and the testicle passed out of the acute stage. Three weeks and a-half after the operation the sutures were removed. In one week more the sinuses were closed; the hernia remained up, and the scrotum well invaginated. He was now, one month after the operation, allowed to get up, and walk about the room. No truss was applied.

May 23d, *one month* after getting up, and two months after the operation, the scrotum remained firmly invaginated; the testicle painless, and about one-third larger than the other; the inguinal canal filled with a dense deposit of lymph; the hernia up, and no bulging. I have seen this boy from time to time until very recently, and he has remained perfectly relieved;

such is his state six months after the operation. I have very little fear of his hernia ever returning. He has worn no truss. He was kept in bed longer than the next case, which was let up too soon.

Case II.—William M——, 12 years old, has a congenital inguinal hernia on the right side. The ring is large, admitting the thumb without difficulty. Testicle, cord, and veins healthy; otherwise strong and active. Has worn different trusses that were made for him, but cannot keep it up with them. The difficulty is increasing as he grows.

April 13th.—After being etherized, and the hernia reduced and held up as before, an incision about three-fourths of an inch long was made through the skin of the scrotum of the right side, at its lower part. The fascia of the scrotum was now dissected subcutaneously from the skin, to which it adheres only by loose cellular tissue, for a space of about an inch and a-half in diameter all round; or until the fascia could be invaginated into the inguinal canal, without puckering the skin. The forefinger of the right hand being placed over the cord, and invaginating the fascia of the scrotum as high up into the inguinal canal as possible, a curved needle, with the eye in the point, and set on a firm handle, was next carried up along the finger, and made to perforate the *conjoined tendon* and *inner pillar* near the *internal* ring. The skin over the point of the needle was then drawn a little inwards and upwards, and it was made to emerge, when it was threaded with a silver suture and withdrawn, leaving one end of the wire projecting above the *pubes*. Next the finger was turned downwards and outwards beneath Poupart's ligament, pressing the cord back out of the way. The needle was next made to perforate Poupart's ligament, from within outwards, and as near the central point between the anterior superior spine of the *ilium* and the spine of the *pubes* as possible, and then, by drawing the skin downwards and outwards, the point was brought out at the same hole where the first stitch emerged above the *pubes*. Here a loop of the suture was retained, and the needle again drawn back. The finger being now turned upwards and *inwards*, and the needle following it, it was made to pierce the inner pillar and triangular ligament at the edge of the *rectus*, and again brought out, for the third and last time, through the same puncture above the *pubes*. The needle was now detached, and withdrawn with the finger. There were now left out above the *pubes* two free ends of the wire suture, which had passed through the inner pillar, one near the internal ring, and the other near the edge of the *rectus*

muscle; and a loop, whose other end was encircling Poupart's ligament, at a point midway between the *pubes* and *ilium*. The loop and the free ends were now crossed, and brought through two holes of a button, and clamped firmly over it. Previous to this, however, it was found, on passing the finger into the inguinal canal, that the fascia of the scrotum was tightly drawn up into this cavity, that the cord and testicle were free, and that on drawing the wires, the sides of the inguinal canal were approximated to each other. As in the former case, vomiting now came on and failed to bring down the hernia, and the same treatment was adopted as before. There was no orchitis; very little pain; not a bad symptom; on the contrary, it was feared that he was not getting up inflammation enough for a cure. There was a pretty free suppuration around the stitches, and through the incision in the scrotum. The sutures were removed in two weeks and a-half, and in four days more the wounds had closed. He was now allowed to sit up and move about the chamber. The hernia remained up, and there was some induration along the inguinal canal.

May 13th.—About one fortnight after getting up, a slight protrusion was noticed at the internal ring. Examination by the finger revealed the external ring reduced in size about one-half, with firm, sharp, and defined edges, showing it to be the result of actual approximation of its walls. There was much thickening of the scrotal fascia and cellular tissue over the ring. He was advised to wear a truss, with a weak spring and a flat pad, for some weeks. Within a few days after putting on the truss he left it off several hours while moving about, and the hernia did not come down. It has never come down since. He has worn the truss at first pretty continuously, then rarely, and for the last month not at all. Being an active boy he disliked the truss, and shirked putting it on when he could. During the last few weeks he has done heavy work, assisting in putting in coal, &c., without the truss, and with no bulging, or feeling of weakness in the groin. He considers himself well, and I think he is.*

These cases were operated on with silver wire,—the third case, which failed, with silk ligatures. Dr. Wood now gives the preference to the metallic suture. The instrument used

* When shown to the Society, the appearance of the parts was as follows:—A linear cicatrix on the right of the scrotum, and a slighter round one above the pubes. A little fulness along the course of the inguinal canal of the right side, and some induration. The testes alike, and the cord free. No puckering, or invagination of the skin of the scrotum. A small external abdominal ring can be felt. Not the slightest bubonocele—*six months after the operation.*

was not unlike an aneurism needle, with the eye in the point, and the latter somewhat sharpened.

Neither of these children were able to keep up their herniæ with a truss; or were benefited by one when worn, although fitted by the best makers of these instruments. It is extremely difficult to keep a truss well-fitted on a young, restless, and growing child; and we are inclined to think that the cases in which a hernia with a large ring, or a congenital one, is cured by a truss, are few in number, and the exception rather than the rule.

The opportunity which a subcutaneous dissection of the fascia over an enlarged ring affords for the anatomical study of the internal parts, is not the least interesting feature of this method of operating. Many things become very plain and palpable, which cannot be felt through the skin; such are the conjoined tendon, Poupart's ligament, the crural canal, the external iliac artery, &c.

In Gerdy's method, the skin covering the sac is invaginated and held in that position by a ligature thrust through the intercolumnar fascia and skin of the groin, till adhesion takes place at the point of ligature. The method proposed by Wützer, substitutes for the finger of the operator a wooden plug variously modified, with the intent to fill the canal and openings, and to stretch them so much as to set up adhesive inflammation all round the invaginated sac. The danger of peritonitis, which is regarded by many as a serious objection to any operation of this kind, may be considered as pretty nearly equal in all. But the results of numerous cases operated on seem to prove that the danger is by no means great, nor sufficient to deter the surgeon from endeavoring to cure this common deformity. "A much more awkward objection," says Mr. Wood, "is drawn from the inefficiency of these methods. In all the cases of Wützer's operation which have come under my observation, the result has been unsatisfactory; the rupture redescending on leaving off the truss." He goes on to enumerate the causes of failure as follows:—

The inefficiency of the steps taken to cause adhesion of the surfaces of the posterior fold of the invaginated sac together, and to the posterior wall of the canal. Into this fold, forming thus a secondary sac, the descent of a knuckle of intestine is imminent.

The action of the plug is to dilate the opening and the canal, instead of contracting them; the external ring and canal being left very patulous after Wützer's operation. The elastic

reaction of the skin and the weight of the testis and scrotum tend, consequently, always to drag down the invaginated tissues.

In order to avoid these sources of failure, Mr. Wood thought better to proceed upon a principle directly opposite to that of dilatation, namely, that of *drawing together and compressing by ligature the abdominal opening and inguinal canal, so as to cause their sides to adhere together.* And he also thought best to give the operation *a subcutaneous character*, so as to reach to a higher point within the canal, and to lessen the bulk of the transplanted tissue. These two principles combined he claims to be new in the cure of hernia.

The results intended to be obtained may be briefly recapitulated as follows:—

The posterior and superior boundaries of the dilated canal are drawn forwards and downwards towards Poupart's ligament, and become united by inflammatory adhesion, in the area of pressure exercised by the ligatures, to the anterior and inferior boundaries. By the use of the two ligatures this takes place from the internal opening above, to the external ring below. The effect of this adhesion is to make the posterior wall act like a valve, excluding the bowel by closing against the anterior wall. This action is aided by the contraction of the cicatrized tissues, and increased by the subsequent downward traction of the testis and scrotum. In this way we have an assurance that the older the cure and the more the pressure, the greater the mechanical resistance and security against the return of the protrusion. The spermatic cord is embraced by the contracting tissues in the groove behind Poupart's ligament, which protects it from undue pressure.

In his work on Hernia, just published,* Mr. Wood gives the result of his operation in *sixty cases*. There was but one death, and that from pyæmia. There were forty-two cures; thus giving about 70 per cent of *successful* results. Many of these were children, and many, also, adults. A considerable number of the latter worked as sailors, coal-heavers, and dock-laborers without trusses, after the operation; and they were kept under observation during a period of a year, or more. It is reasonable to consider the danger of the operation less in a hernia the result of strain, than in a congenital one; for in the latter case we necessarily traverse the peritonial sac, and in the former we may not. This operation has also the advantage of render-

* On Rupture, Inguinal, Crural, and Umbilical; the Anatomy, Pathology, Diagnosis, Cause, and Prevention; with New Methods of effecting a Radical and Permanent Cure. By John Wood, F.R.C.S., &c. London, 1863.

ing a truss more efficient, even if it does not cure the hernia. For it leaves the rings smaller and the walls of the inguinal canal nearer together than they were before.

Mr. Wood has introduced some modifications of his method since these operations were done. But the essential principle is the same; to close the inguinal canal and both rings by approximation, and inflammatory adhesion. And this certainly seems the most reasonable method of attempting a radical cure.

REPORT OF THREE CASES OF AMAUROSIS PRODUCED BY TOBACCO.

By J. C. WORDSWORTH, Esq., F.R.C.S., Surgeon to the Royal London Ophthalmic Society.

Reprinted from the "London Lancet."

Case 1.—W. A——, aged 21, a clerk, residing at Liverpool, came to the Royal London Ophthalmic Hospital in 1861, on account of partial loss of sight in both eyes. He is a strong, healthy-looking, rather little man. Has always had excellent health, and never suffered from syphilis. His employment is principally in the open air, as he is engaged in clearing vessels at the Custom House, &c. For some years he has smoked, having gradually increased from two or three pipes per day, until he has reached the enormous amount of a pound to a pound and a-half of strong tobacco in the week; and for some time has rarely been without his pipe half an hour in the day. For a long period his sight has gradually failed, till he can only see to read, for a short time, characters of one-third of an inch. Though he has had misgivings that his ailment proceeded from tobacco-smoking, he has continued the habit to the present time, and is now daily becoming more blind.

Both pupils are rather large, but the motions of the irides are active. By means of the ophthalmoscope, both optic nerves appear of brilliant white color, their areas being enlarged, and their outlines irregularly defined.

Case 2.—J. M——, aged 36, a railway servant, came to the Ophthalmic Hospital, on account of dimness of sight in both eyes, about June, 1862. He is a tall, muscular, rather pale man, and says he has always had good health. He is employed as a signal-man, and has been accustomed to beguile his time by smoking all day long. For an uncertain time he has noticed his sight to be gradually failing, and attributed the defect to the use of tobacco. He has still continued to smoke to the

present time, and his sight has now become so imperfect that he is unable to attend to his business. He has never had venereal disease of any kind, nor has he used his eyes much for close vision.

The pupils are considerably dilated, and not much influenced by light. The fundus of each eye seems quite normal, with the exception of the optic discs, which appear too large, and irregularly circular, the tissue being quite of tendinous whiteness.

Case 3.—G. A——, aged 28, a butcher, residing in Essex, applied at the Royal London Ophthalmic Hospital, March 25th, 1863, on account of failing sight in both eyes. He is a stout, strong, middle-sized man, having every appearance of health, and says he has had excellent health all his life. He began to smoke about eight or nine years ago, moderately, but, gradually increasing, has now for some time been in the habit of smoking half an ounce of strong tobacco every day, apparently without any ill effect. About nine months since, his sight began gradually to fail, and has continued to get worse to the present time. He has always been temperate as to the quantity of beer, &c., which he has taken, and has never drunk spirit habitually. He is a married man, and has three healthy children. Has never suffered from syphilis, nor has he used his eyes much at any trying occupation. With the exception of both pupils being rather large, and the motions of the irides sluggish, he has no external appearance of any ailment of the eyes. He can only see to read No. 18 test-type (canon) with his left eye, and with the right No. 16 (two-line great primer), word by word; and distant objects are equally indistinct.

The ophthalmoscope demonstrates an atrophic condition of both optic nerves, the inner (apparent) half of each, seen in the reversed image, being quite white and non-vascular; the outer part being redder, and more vascular than normal.

Within the last three years I have seen a considerable number of cases of amaurosis, apparently produced by the influence of tobacco. I admit (I need scarcely say) how difficult it is to reduce the etiology of this obscure affection to a demonstration. For, in the first place, amaurosis is attributed to a vast variety of causes, many of which are always more or less in operation; then, again, the disease is dependent on a similar variety of *pathological conditions;* and, lastly, our knowledge of the physiology as well as of the pathology of the retina and brain is so limited that we can ill appreciate or define the influence of physiological agents on their structures and functions.

No one can doubt that tobacco possesses properties that are

capable of producing great effects on the nervous system at large, nor that the habitual use of it has much influence, of an indirect nature, on the vital reactions. Our only wonder is, that the almost universal employment of this powerful agent does not leave vestiges of its influence that are better known and recognized as signs of disease. This may be accounted for to some extent by the rapid cadaveric changes that occur in the nervous elements, thus obscuring or effacing diseased states before we have the opportunity of recognizing them.

All the classic writers attribute its full share of causation to tobacco as a source of amaurosis; yet I have not met many that are willing, individually, to allow that they have traced its influence. But it has often happened that the causes of disease are long unrecognized by many, after as full a proof has been made of their reality as possible. For instance, it is recorded of one of the causes of iritis (that every one now allows) that for many years it was not admitted by men of vast experience that any closer relation than that of coincidence existed between it and syphilis; yet so great has been the revulsion of opinion that some eminent men now seem to think it never occurs except in connexion with that contamination.

I have selected the cases above sketched to illustrate this subject, because they seem to be as free from the unavoidable fallacies that encircle this subject as possible. Many have come under my notice in which I could not find any other cause to account for the conditions; but few so typical of the atrophy of the optic nerve, or so advanced. It is obviously desirable to cite well-marked cases. Many of those observed gradually merged into less definite conditions, and were only corroborative, rather than conclusive. Again, many were so fettered with other complications that I consider them inapposite for my present purpose. All the cases that have come under my observation have (as might probably be expected) been in males. It will be noticed that only one pathological condition was seen in these three cases,—namely, that of white atrophy of the optic nerves. I am not prepared to assert that tobacco produces blindness in this way only; but in all my cases I have recognized this condition in a great or small degree.

I may anticipate that I shall be asked, How can it be that of the hundreds of thousands of smokers, only so small a proportion are affected by amaurosis? I should reply, first, that few probably smoke to such excess the strongest tobacco; in the second place, we are not yet in a position to recognize the smaller degrees of tobacco-disease; and, thirdly, as Dr. Mac-

kenzie has aptly observed, only one of five hundred shall become amaurotic, in whom a stronger predisposition to the disease had existed.

Secondary syphilis affects the retina, and leads to amaurosis; but of the thousands affected how few become blind!

Then it has been suggested that I ought to show that amaurosis is most common where smoking is most general. To this I reply, it is impossible so to estimate and proportion the other recognized causes of amaurosis so as to enable us to compare them with the effects of tobacco, and thence deduce any relation. But so far as probability warrants, I think there may be some conclusion to this purpose deduced from the greater frequency of atrophy of the optic nerves in men than in women, (of which I suspect there is little doubt,) though the other causes of amaurosis are more likely to affect the latter,—for instance, needlework, &c.

Dr. Mackenzie, in his great work on Ophthalmology, expresses his belief that tobacco is a *frequent* cause of amaurosis, and adds that "one of the best proofs of tobacco being a cause of amaurosis is in the great improvement in vision—sometimes complete restoration—which ensues on giving up the use of this poison," and cites a very striking case in illustration. With him I agree also in the conviction, that tobacco is a common cause of the cases of partial loss of sight that are daily to be found at our hospitals.

Queen Anne Street, 1863.

ON INFANTILE PARALYSIS.

By HOLMES COOTE, Esq., F.R.C.S., Senior Assistant-Surgeon to St. Bartholomew's Hospital, and Assistant-Surgeon to the Royal Orthopædic Hospital, Lecturer on Surgery to St. Bartholomew's Hospital.

Reprinted from the "London Lancet."

The description of the disease termed "infantile paralysis" is, I think, generally defective in two particulars; first, it is regarded as a morbid affection standing somewhat apart from other diseases of the nervous system; secondly, the description does not include those final and secondary changes in the muscular and osseous systems which produce contractions of limbs, deformities, or even complete loss of power.

The Orthopædic Hospital affords a very ample field for the investigation of this subject, about 80 of every 1000 patients being instances of the affection in some one of its varied forms;

and I must here state, that the cases which come under treatment appear to me to be the survivors of a yet larger number, many of whom have perished from the violence of the symptoms at the first attack. I cannot, therefore, look upon it as a "disease not dangerous to life;" although it is true that many survive, bearing upon them, nevertheless, in their withered and contracted limbs the traces of the severity of the shock they have sustained.

In speaking of this class of nervous affections, I must limit the terms of "infantile paralysis" to one of the effects produced by the functional disturbance of the nervous centres; for, as must hereafter be shown, muscular atrophy and general loss of temperature and power express, in a very rough way, the complications with which we have to deal. Atrophy may be limited to one muscle, or to a set of muscles; there may be contraction of the limb either with or without atrophy; the direction of the contraction varies extremely.

Respecting the condition of the brain and spinal cord, I need scarcely observe that the absence of any recognized morbid change of structure in those cases in which we have the opportunity of making a *post mortem* examination is rather to be regarded as an instance of our defective means of observation than as a proof that no such morbid change exists. Of the truth of this statement, tetanus offers a well-known proof. Morbid anatomy has hitherto revealed nothing satisfactory to explain the phenomena which occur during life. The same remark applies in general to cases of infantile paralysis. But in one case a deposit of tuberculous matter was found in the membranes of the brain about the cerebellum; and in another, an impacted calculus seemed the cause of the disturbance by its reflex irritation. The most common exciting cause is the irritation of first dentition; but I have known the same effect to be produced by the second dentition, and have witnessed symptoms of analagous character, though not so strongly marked, in the adult. A young lady, twenty-two years of age, whose teeth were crowded together and partly decayed, experienced occasional attacks of numbness and loss of power in one upper extremity, recurring at intervals, until she had been relieved by an experienced dentist of the stumps of a number of decayed teeth, which had been the source of pain. But the attack may be quite sudden, without any recognized premonitory symptom. Thus an infant at the breast will appear to have momentary faintness, or may be taken up by the nurse as usual after an apparently uninterrupted night's rest, and in both instances the limbs may be found paralyzed.

On May 7th, 1863, I saw a boy, aged 8, at the Orthopædic Hospital, in whom the left lower extremity was smaller in circumference, shorter, and colder that the opposite, the foot being in the position known as equino-varus. His mother gave the following history:—At two years of age, when to all appearance well, he suddenly fell down stairs from a landing whereon he was playing. When taken up, it was found that the limb had lost all power, and he has never walked since.

On the same day I saw another boy, Henry M——, aged 4, suffering from talipes equino-valgus of the left limb. The mother said that the child began to walk when about twelve months old. He was then, to use her own words, "taken off his feet" by vomiting and purging. For two years he was quite unable to walk. He was galvanized at another hospital, but without avail. After a time, he became stronger in the back, and could sit up; finally, he recovered the use of all the limbs, except the left lower extremity, which has continued weak, cold, and deformed. The limb is smaller than the opposite in circumference by a quarter of an inch, and shorter by half an inch.

The same effects have been referred to the influence of eruptive disorders on the frame. On May 18th, 1863, I saw a boy, named Richard G——, aged 6, suffering from talipes equinus. The mother said that six weeks after having had the measles he went to bed as usual. The next morning she found the right leg completely paralyzed. After a time, some power returned in the muscles of the calf, and the heel was drawn upwards. The limb was smaller in circumference, but not materially shorter.

I do not believe that "talipes equinus" is ever congenital as a deformity. Now, there are two classes of cases, which, though allied as indicating disturbance of the nervous centres, and in both instances followed by contractions of the limbs, are yet separated by important points of difference. In the first, the limbs are spasmodically contracted, the thighs and legs bent, the heel raised, and the movements are irregular, but there is neither atrophy of the limb nor diminution of temperature. In the second, the heel may be raised or the foot otherwise turned; but the limb is shorter, smaller, colder, and wasted. In the first, the muscular degeneration and conversion into fat is a slow process, extending over many years. In the second it is rapid, the growth and development of the limb being arrested from the very moment of the stroke. I believe the first to be an instance of disturbance of the control of the

will over muscular power from *cerebral* irritation, such as would be excited by the deposit of tuberculous matter in the membranes about the cerebellum; the second to be an instance of lesion of the *spinal cord.* And, although no very clear line of demarcation can in all cases be drawn between the two, yet we find that in the first class of cases the patients are often morbidly excitable, irritable, and prone to laugh or cry; while in the second class, after the first symptoms have subsided, the functions of the brain do not seem to be affected.

I fancy that in these cases of cerebral disturbance there is often a congenital defect, the development of the brain and the manifestation of the intellect being imperfect. I am now attending the daughter of a lady, whose case illustrates this point. The child is about 10 years of age, and she was put under my care in consequence of her ungainly walk, the knees being slightly bent, and the feet having an inclination inwards. I found that the muscles of the calf were so much contracted that at the foot was held at right angles to the leg, and the heels came with difficulty to the ground. The control of the will over the muscles generally was imperfect. The child could learn a short lesson, but was not studious; was subject to violent fits of temper, and never had shown affection for any about her. The general aspect was such as warranted a prediction that these peculiarities might become stronger with age.

The ultimate effects of infantile paralysis, dependent on lesion of the spinal cord, as it affects the limbs, are as follows:—

In by far the greater number of cases the loss of power is in the lower limbs. At the commencement, the paralysis may be general and complete, but usually all the limbs save one recover as mysteriously as they were attacked. Neither sex nor side of the body seems to exercise any influence. Boys and girls, right and left side of the body, suffer equally. But the paralysis is rarely complete: the foot rarely hangs powerless; usually the muscles of the calf retain some power, and pull up the heel (talipes equinus paralyticus); or the foot may incline inwards (talipes equino-varus); or the muscles of the calf and the peronei may pull it outwards (talipes equino-valgus); or, finally, the anterior tibial muscles may overcome the paralyzed muscles of the calf, producing talipes calcaneus.

As patients grow up, the great annoyance which they experience is the liability to sprains. All the ligaments are weak and elongated; and if a person so afflicted tread on a stone or any rough body, he gives the limb a twist which lays him up for days.

The affection may be limited to an upper extremity, in which case, usually, the deltoid muscle becomes paralyzed, and the humerus drops from the socket; or, in rarer instances, the muscles of the upper arm become wasted, the forearm being well formed as usual.

There are cases in which the affection comes on slowly and progressively; others in which first one limb and then another is attacked, but these are comparatively rare. I saw a boy, aged sixteen months, in whom the right heel had been drawn up when the child was five months old. That attack passed away; at the present time (May 18th, 1863) the left heel is contracted.

In all these cases, the treatment consists in an attempt to remove the source of irritation, whether it be seated in the brain or spinal cord, or whether there be any amount of reflex irritation. As a general rule, tonics are not indicated; but purgatives and small doses of tartar emetic often relieve symptoms. The temperature of the limb must in all cases be carefully maintained; and when, finally, the contraction has become permanent, the proper tendons should be divided, and elongated by subcutaneous tenotomy and extension, the foot being held in proper position by the aid of irons. The details of this treatment would lead me into particulars which are already well known to the profession, and which require modification according to the nature of the case.

Queen Anne Street, Cavendish Square, 1863.

ON THE TREATMENT OF MALARIOUS FEVER BY THE SUBCUTANEOUS INJECTION OF QUININE.

By W. J. MOORE, L.R.C.P.Ed., Bombay Medical Service.

Reprinted from the "London Lancet."

Since the year 1858, when Dr. Wood brought forward the hypodermic method of administering morphia, the plan has been extensively tried. Moreover, the results following the injection of morphia into the subcutaneous areolar tissue have, on the whole, been satisfactory, and the use of the alkaloid in this manner has now become an established practice in various obstinate neuralgic disorders. Other agents, as atropia, have also been used hypodermically with varied success, and I have latterly employed a strong solution of quinine for the cure of

intermittent and remittent fever by the method of subcutaneous injection.

The success which has attended the practice renders me desirous of calling attention to this novel mode of using quinine. I have so employed the remedy in upwards of thirty cases of intermittent fever, and in several cases of remittent, and with almost invariable success, the former class seldom requiring a second application, the latter generally subsiding after the fifth or sixth injection. Since the period I commenced to use quinine in this manner, I have been surprised and pleased to find in one of the medical periodicals that the same plan has been pursued by Dr. Chasseaud, of Smyrna, who reports 150 cures, and especially recommends the system in fever complicated with gastric symptoms, when the exhibition of quinine by the mouth is often "inefficient, difficult, and hazardous."

I use the strongest solution of quinine which can be prepared —viz., thirty grains of quinine, eight or ten drops of dilute sulphuric acid, and half an ounce of water. Of this I inject from half a drachm to a drachm, the former quantity containing some four grains of the active agent. With the exception of a little sulphate of soda, if the bowels are confined, I use no other remedies whatever in uncomplicated cases of any type of malarious fever. When the spleen is enlarged, or if a leucocythemic condition is present, I prescribe, as an additional curative agent, one or other of the preparations of iron—very frequently the citrate of iron and quinine.

I generally inject beneath the skin over the outer belly of the triceps extensor muscle, and sometimes over the deltoid. I have, however, used the syringe with equal effect on the thigh and calf, and in cases of enlarged spleen have thought the action of the remedy increased by injecting over that organ. I use a small glass syringe with the screw action, and furnished with a sharp silver point some half an inch in length. The latter is introduced beneath the integument half an inch or less, and the pain is not greater than the prick of a pin. Indeed, patients have frequently declared they would rather submit to this process than taste the bitter of quinine. I have never seen the slightest inflammation or irritation follow the operation except in two instances. In one of these this result was due to the instruments employed—namely, a small trocar and common glass syringe; in the other, to quinine in *suspension* being used instead of in *solution*. Indeed, I have reason to think that quinine in suspension is very irritating to the tissues, and this is what physiology would lead us to expect, as it is certain that

when a fluid material is introduced into the areolar structure, it will be absorbed more directly than any solid mass could be. Therefore, to avoid irritation of the parts, and, also, to prevent "choking" of the syringe (and which instrument was procured from England), I insist upon a perfectly clear solution of the alkaloid.

The best time to inject is shortly before the expected cold fit, but it may be done during the first stage with the effect of lessening and somewhat stopping the whole paroxysm. Latterly when a patient presents at the morning visit, who expects an accession during the day, I have injected at the time, and nearly invariably the fever has stopped.

In cases of remittent I have endeavored to inject during the remission, but do not wait for this period. In severe cases the injection should be repeated at intervals of six or eight hours.

I believe four or five grains of quinine injected beneath the integument are equal in their effects to five or six times that amount taken into the stomach; also, that the effects are more certain than when taken in the ordinary method; and, also, that relapsing attacks are less common than when the remedy is administered by the mouth.

Bombay, 1863.

Book Notices.

THE PHARMACOPŒIA OF THE UNITED STATES OF AMERICA. Fourth Decennial Revision. By Authority of the NATIONAL CONVENTION FOR REVISING THE PHARMACOPŒIA, held at Washington, A.D., 1860. Philadelphia: J. B. LIPPINCOTT & Co. 1863.

This is a thoroughly revised, much improved, and neatly printed edition of the U. S. Pharmacopœia. Instead of attempting to enumerate the several important changes and additions made in this edition, we will simply say, that the Committee of Revision was composed of men thoroughly qualified for the duties assigned them, and they have performed their task well. The present volume is a small-sized octavo, containing about 400 pages, on good paper and excellent type. Price, $1.00. For sale by S. C. Griggs & Co., of this city.

A Manual of Instructions for Enlisting and Discharging Soldiers: with special reference to the Medical Examination of Recruits, and the Detection of Disqualifying and Feigned Diseases. By Roberts Bartholow, A.M., M.D., Assistant-Surgeon U. S. Army; Surgeon-in-Charge of McDougal General Hospital; Professor of Military Medical Jurisprudence, Army Medical School. Adopted by the Surgeon-General for issue to Medical Officers of the Army. Philadelphia: J. B. Lippincott & Co. 1863.

This is a small-sized octavo volume of 276 pages, published in the well-known neat and attractive style of Lippincott & Co. The scope and objects of the author are pretty well indicated in the titlepage, as copied above. The work is divided into the four following sections:—

"Real Disqualifications for Military Service."

"Pretended Disqualifications for Military Service."

"Enlisting Soldiers."

"Discharging Soldiers."

From a very hasty glance at the matter and style of this work, we should think it sufficiently full and plain for all practical purposes. To those who are engaged in examining men, either as candidates for enlistment into, or discharge from, the Army, it is an exceedingly convenient manual; while it will be found useful for reference in the library of every practitioner. For sale by S. C. Griggs & Co., Lake Street, Chicago.

Editorial.

MEDICAL COLLEGES IN THIS CITY.

The regular annual course of lectures in the Rush Medical College was commenced by a general introductory, delivered on the evening of the 1st of October, by E. Ingalls, M.D., Prof. of Materia Medica.

The lecture was well written, and contained many judicious suggestions to the class, and was listened to with pleasure by the audience. The number of students in attendance, was stated to be fully equal to that present at the commencement of any previous session.

The fifth annual course of instruction in the Chicago Medical College, began on the evening of the 12th of October. The general introductory lecture was delivered by the Professor of Principles and Practice of Medicine and of Clinical Medicine, and may be found in full in another part of this number of the EXAMINER. A larger number of matriculants were present than at the commencement of any previous term. After the lecture and the usual notices in relation to the several hours of lecturing, the hospital clinics, &c., the rooms of the new building were thrown open for examination.

All appeared to be well pleased with its arrangements, and with the general indications of a prosperous and useful collegiate year.

INDICATIONS OF PROGRESS.—The editors of the *Chicago Medical Journal*, neither of whom have paid the slightest attention to any medical society in this city, during the last ten years, nor taken any part in the State or National Associations for more than three years, are just now amusing their readers with editorials gravely setting forth the importance of medical societies and associated medical investigations. Is it possible that these gentlemen begin to realise the legitimate effects of their past indifference and selfish exclusiveness; and, especially, of their illiberal course towards the recent session of the American Medical Association in this city?—And do they hope quietly to escape from their present unenviable position under a profusion of editorial verbiage and pretended zeal for medical associations?

If so, we wish them speedy success; and hope they will immediately reduce their professions to practice, by either actively and cordially sustaining our present City, State, and National Medical Societies, or effecting the organization of others of a better character. We trust the various *Ship Canal* projects of the country are sufficiently matured to enable them to devote, at least, a part of their spare time to the interests of medical societies.

CHICAGO MEDICAL SOCIETY.—This Society, which has maintained an active and useful career of more than ten years duration, holds its regular meetings in room No. 9, in Larmon's block, on Friday evening of each week. The meetings are well attended, and are devoted exclusively to the cultivation of medical science and practice. The reading of papers; the reports from the standing committee on the sanitary condition of the city; the discussion of questions specially selected for that purpose; and the relation of cases, occupy the time and constitute the doings of the Society.

At the meeting, on the evening of the 23d ult., Dr. PAOLI presented an ovarion tumor recently extirpated from a patient, which was composed of several large cysts or sacs, from which was taken eight or ten gallons of serous fluid; and of several solid fibrous tumors aggregated together, weighing without the the serum, between six and seven pounds. The bulk of the solid part of the tumor rendered a long incision through the abdominal walls necessary, and though several adhesions existed, the extirpation was effected without much difficulty. The patient continued to progress favorably for the first few days, but subsequently, sunk under symptoms of peritoneal and phlebitic inflammation.

Dr. DAVIS, inquired whether any member of the Society had investigated the reported cases of ovariotomy, with a view to determine the relative fatality of cases in which the tumors were wholly made up of cysts containing fluid, as compared with those in which the tumors were partly solid and the fluid in the cystic portion thick and turbid? In the few cases, that had come under his own observation, those of the latter variety terminated fatally, while those of the former recovered. But those cases were too few to justify any practical inference, and he had made no general examination of the subject. He did not mean to convey the idea, that the difference in fatality depended on anything connected with the operation for extirpation of the tumors, but on the difference in the constitutional condition of the patients accompanying these two classes of cases. Remarks were made by several members, when a vote

of thanks was tendered to Dr. PAOLI, for the interesting pathological specimens presented; and the regular question for discussion taken up, as follows, "Is retarded disintegration or metamorphosis of tissue equivalent to positive nutrition?" The discussion related principally to the action of alchol on the healthy animal economy, and was continued with much interest until a late hour.

MATTER FOR REFLECTION. — We copy the following letter from a recent number of the *Medical and Surgical Reporter*, of Philadelphia. The facts set forth need no comment from us. We commend them to the special consideration of the editors of the *American Medical Times*, and of the *Chicago Medical Journal*. When heartless tyranny takes the place of true efficiency; when official insolence is mistaken for professional dignity; and arrogant pretension supersedes scientific acquirements, then humanity is made to blush with shame:—

UNNECESSARY AMPUTATION OF THE LEG— TETANUS—DEATH.

WASHINGTON, D.C., May 13, 1863.

J. V. P. QUACKENBUSH, M.D., Surg.-Gen. S.N.Y.

SIR: Friday morning last, I was invited by a nephew of Senator Wilkinson, of Minnesota, to call at the National Hotel, in this city, to see Col. Newman, of the 31st New York Volunteers, who had reached there from the battle field, wounded. I called about nine o'clock a.m. No physician had been there; none had seen him since his arrival from the battle field. I found that he had been wounded in the left foot by a grape-shot, on Sunday, 3d of May. The ball had passed obliquely upward from the left side of the foot, crushing the anterior part of the tarsus and lodging just under the skin, but not involving the ankle joint. The ball had been removed, as the Colonel told me, from 12 to 15 hours after the injury was received. The surgeons, including the Division-Director, decided that the foot could be saved, and the Colonel was sent to this city on a stretcher, and arrived about an hour and a-half before I saw him.

The opening was about two and a-half inches transversely across the foot; the foot and leg nearly to the knee hot, dry, and shining with inflammation. No appearance of suppuration;

painful. Notwithstanding this, I told the Colonel that I concurred entirely with the surgeon in front, as to the probability of saving the limb. I recommended quietude and cold applications; washed out the wound and dressed the foot. I met Senator Wilkinson soon after my return, and he called my attention to the case, expressed himself pleased that I had called, and hoped the foot of the noble Colonel might be saved.

In the evening of the same day I called again, but Colonel Newman informed me that an army surgeon had been in, and with an omnious shake of the head had said, that the foot must be amputated. I advised, as a friend, against amputation, and the Colonel was hopeful, very thankful for the encouragement, and desired to place himself in my charge. The foot and leg was yet in a high state of inflammation; the evaporation produced by the cold lotions had somewhat relieved the pain and tension and the inflammation was gradually subsiding. Each day until, and including the 11th, I called and washed and dressed the wound twice a-day. On the fourth day, the inflammation had very considerably abated, and suppuration had commenced. The wound in the skin and soft tissue had begun to granulate, the whole appeared healthy, and the constitutional symptoms had subsided. The Colonel's appetite was good, he slept well, and experienced little or no pain, except when the limb was moved. I had not changed my previously expressed opinion as to saving the limb, but the result of the treatment confirmed me in the belief that the chances of life were better without amputation than with. Dr. Spencer, of Watertown, Dr. Green, of New York city, and five army surgeons of good standing and experience, who saw the Colonel, and the wound, expressed opinions very similar to my own. The Colonel assured me that in several instances the same opinion that I had advanced was expressed, and that the chances of life were better by waiting than by amputating the limb.

On the 11th, I learned from the Surgeon-General of the United States, William A. Hammond, on whom I had called on business connected with my going to the army of the Potomac, that he objected to my visiting Col. Newman in any capacity, even as a friend,—that the National Hotel, at which the Colonel was stopping, was located in a certain district in Washington, and that an army surgeon had charge of the district, and that the patient belonged to such surgeon, and that I had no business to call in any capacity. The Colonel told me the same day, that he was fearful the army surgeons would take off his foot that day; they had told him the evening previous, that he

must take a good night's rest, and he thought it was omnious of their intentions. I learned from another source that it had been determined to take off the Colonel's foot the following day, and I declined to call again. On the evening of the 11th, I received the following note:

Dr. SWINBURNE:—Dear Sir,—Will you oblige me by calling this evening. I learned, this afternoon, that some matters of professional etiquette would prevent your calling, and I therefore invite you. You were the first surgeon who visited me after my arrival in this city, and you gave me permission to call on you at any time, night or day. I take the liberty of holding you to your offer. Yours respectfully,

(Signed) LEOPOLD C. NEWMAN,
Lieut.-Col. 31st New York Volunteers.

NATIONAL HOTEL,
Washington, D.C., May 11, 1863.

In compliance with the note I called, with Dr. Spencer, of Watertown, N. Y., and found the Colonel in a state of great excitement. There had been a consultation of surgeons at his room that afternoon, and they had decided to operate, stating that they should have done so before had they not had so many cases to attend to. He was of the opinion that nothing short of taking off his foot would satisfy the surgeons, and they had assured him that he would be quite well in two or three weeks. The Colonel asked me what he should do. I advised him to get permission from the Department to continue his journey to New York, where he could have the counsel of his own physicians and surgeons. Dr. Spencer offered to accompany the Colonel, if he secured permission to go. Colonel Newman had succeeded in postponing the operation that day.

On the 12th, he requested permission to go home to New York, but the surgeons decided against it, and said that he must have his foot amputated or they would not attend to him, and that if he did not submit to their decision in regard to him, he would be reported to the Surgeon-General for contumely, and dismissed the service. The Colonel assured me that a friend of his had been so served. The evening of the 12th, when I called, the Colonel said he supposed he would be obliged to submit to the amputation to-morrow, the 13th, and that after the surgeons had accomplished their purpose, in a week or two, he would be permitted to go home. Surgeon McLean, of the 2d New York Volunteers, called with me on the evening of the 12th. I had been with him on his invitation to see Colonel

Parks, of the 2d New York Volunteers, whose right leg the surgeons had skilfully amputated some days previous. He was doing finely.

On the 13th of May, I did not call, but heard from Colonel Newman through a friend boarding at the National. Down to 12 o'clock m. the wound had not been dressed. The Colonel told my friend that he expected the surgeons would be there to amputate the foot that day; the Colonel had told me that he supposed there was no other way but to submit or be discharged the service in disgrace, without pay, as the surgeons had assured him he would be unless he did. A friend of the Colonel called on Dr. Clymer, who had been consulted in the case, and who appeared possessed with full power, and who gave his views after consultation with Surgeon-General Hammond on this case. Dr. Clymer told the Colonel's friend, and also my friend, that he would not give the Colonel the choice to go to New York or remain here; that he was only to remain here and have his foot amputated; that if he did not submit here they would leave him, and he should have neither pay nor medical attendance, but that they would strike him from the roll, and leave him outside; that he had the authority of the Surgeon-General U. S. A. for saying this; that he had no right to receive, nor had any outside surgeon the right to give medical advice in such a case. If he did receive it, they would strike him from the roll and turn him out, and that they would have nothing whatever to do with him. And he added to the Colonel's friend: "If I find a citizen surgeon in the room looking at any of my patient's, I'll kick him down stairs."

All of which, save the last sentence, corresponds with what the Colonel had stated to me on the evening of the 12th, in the presence of several gentlemen; he remarked, that all these things were threatened by Dr. Clymer, in his interview with him at the National Hotel.

The following note, received from a friend who watched the Colonel's case from day to day, will give a just surgical record of what occurred from the 13th to the time of his death:—

Washington, D.C., June 10, 1863.

My Dear Sir:—After you left, on the 13th ult., Col. Newman was troubled with but little pain, meanwhile his wound freely suppurated.

On the 16th, I think it was, the attending surgeon had ether administered to him, and what was called a "perfect examination" of his wound was thoroughly made. A small piece of

leather and a bit of bone an inch in length, and a little less in width, near or from the joint of his foot, was wrenched off. It required an exertion of strength to take it out with the instrument. The next day he was attacked with *tetanus*, with intervening spasms; a blister and opiate were resorted to. Dr. Clymer said that his only chance of life lay in amputation, and that it *ought* to have been done when he (Dr. C.) originally proposed it, as in that case there would have been no danger.* Dr. Clymer performed the operation, assisted by surgeons De Witt, Swasey, Farrel, and Allen. The next day tetanus grew worse; day after, in spite of morphia and black drop, the spasms were dreadful. For two or three days he remained in this terrible condition, till an application of chloroform to the back of the neck along the side and sciatic nerve, gradually brought relief. Appetite good, color good, and perfectly conscious. He may literally be said, by aid of medicines, to have worn out the tetanus.

On Sunday morning, the 7th inst., he was attacked with secondary hemorrhage. A good nurse was present, and a surgeon was at the bar of the hotel, and although immediately arrested, the loss of a few ounces of blood turned the scale, and he died in three hours.

This noble soldier often expressed his thanks for your kindness, and could not convince himself that, in handling and dressing his wound, any hands were as soft and delicate in their touch as yours.

To bravery that knew no fear, he united the susceptibility and loving disposition of a child; and our hearts are nearly broken, and our spirits saddened at his departure. He sent for me as soon as the hemorrhage was known; but when I came he was too much exhausted to speak, and a pressure from his hand alone told that I was recognized. Comment is needless.

Respectfully, &c.

* Dr. Clymer and his associates stated to the Colonel that the reason why he did not amputate at first, was, that he did not have the time—and that, secondly, why he wished to amputate—the surgeons had not time to attend him through so long a period as he would require surgical attention, without amputation. Thirdly. If amputation was performed he could go home in three weeks, and be fitted with an artificial leg. On the 13th, when the operation was to have been performed, it was still further postponed to accommodate the surgeons; while on the 16th, the condition of the Colonel and his wounded limb was better than at any previous time after the primary stage, and was daily improving, and still Dr. Clymer says, "It (amputation) ought to have been done when he originally proposed it, as in that case there would have been no danger." Notwithstanding this assertion, the surgeons, instead of amputating on the 16th, administered ether and irritated the lacerated parts to such an extent as to produce "Tetanus."

POINTS OF INTEREST IN THIS CASE.

There are several points here worthy of note: 1st. The surgeons on the field decided upon the propriety of not amputating the foot of Colonel Newman; that it could be saved "without amputation." 2d. That the injury was inflicted on the 3d, and the surgeons on the field decided not to amputate. When he arrived in Washington, on the 8th, while the whole limb was tumefied and absolutely shining with inflammation, the surgeon in Washington wished to amputate. This was delayed from day to day, and still the foot improved in spite of the depression of mind caused by the constant threat of amputation. On the 13th, they demanded amputation, and it was delayed—the same condition of things exist, and I learn the surgeons decide upon waiting for a few days. On the 16th, Colonel Newman was troubled with little pain; meanwhile his wound freely suppurated, and in fact, his condition had continued to improve so that suppuration was free.

On the 16th, "The surgeons administered ether, and made a perfect examination" of what? Why, a wound that you could easily put all your fingers and thumb into.

This examination resulted (as the surgeons stated) in finding a small bit of leather, and in wrenching by great force a piece of crushed bone, about one inch square, from its connection with the living tissues, besides doing other irreparable injury to the soft parts. All of these loose bones, leather, &c., would have dropped out of the wound whenever loosened by nature. 3d. The 17th, (next day) he was attacked with tetanus—how significant!! Cause and effect are sure to follow. The story of the "apples" over again; you need not knock them from the tree, since if let alone they will fall when ripe; and so the bone will surely follow the organic laws of nature; *ergo*, the ignorant interference with the bone caused the irritation which resulted in tetanus; the amputation and hemorrhage followed; and the sequal—death—was the result. 4th. If amputation was to have been performed, why make the "examination" at all, in the manner it was made, since the eye could scan the entire wound, and the finger could easily pass through and into the wound and ascertain its condition? Then why irritate the parts before amputating at all? Since it is the desire of all good surgeons to avoid it, in order to save the shock, the pyæmia gangrene or tetanus. That the latter followed so soon after this injudicious interference, there need be no wonder.

Respectfully submitted,

JOHN SWINBURNE.

CHAIR OF MEDICAL JURISPRUDENCE.—It should have been stated in the previous number of the EXAMINER, that H. G. SPAFFORD, Esq., had resigned the chair of Medical Jurisprudence in the Chicago Medical College, which had been ably filled by him during the past four years. Inability to spare the necessary time from his professional practice was the cause of his retirement. The chair has been filled by the appointment of M. O. HEYDOCK, M.D., of this city; whose professional attainments, general scholarship, and gentlemanly bearing, will render him not only a successful teacher but also a most agreeable member of the Faculty.

RIDGEWOOD'S DISINFECTING POWDER.—We have received the Report of a Committee of the New York Academy of Medicine, in relation to the value of this substance.

The Report was made by Dr. J. H. GRISCOM, and furnishes evidence that the committee, subjected the powder to a pretty thorough practical trial in various ways. The results of their investigations are clearly indicated in the following extracts from the Report:—

"The article called the "*Ridgewood Disinfecting Powder*," presented by a sample to the Academy of Medicine in July last, and referred to the Section on Public Health and Legal Medicine for examination and report, has been submitted to several experimental tests, which together with evidences of its value obtained from other sources, especially some of the U.S. military hospitals, will satisfy the Academy not only that it is a valuable addition to the class of substances denominated disinfectants and deodorizers, but that it also possesses decided antiseptic powers.

"The composition of the powder, as given by Mr. Napier, the Chemist and President of the company manufacturing it, is as follows:—

Carbolic acid,	5 to 8 per cent.
Sesquichloride of iron,	2 "
Lime, from magnesian limestone,	5 "
Silicate of alumina (in the form of Fuller's earth),	75 to 80 "
Prepared charcoal, or ground pumice stone,	10 to 12 "
Sulphate of potash or soda,	a trace.

"It will be observed that here is a mixture of six different substances, having no reaction upon each other, but possessing each some power of reaction upon some one or more of the products of putrefactive decomposition.

"The first named ingredient, carbolic acid, may be regarded as an impure creosote, and possesses the deodorizing and antiseptic properties of that substance, even, it is said, in a greater degree. It belongs to the class of chemicals known as hydrocarbons, a class varying in the proportion of their elemental constituents, and having affinities varying with these proportions.

"The second component of the Ridgewood powder, sesquichloride of iron, acts particularly as a deodorizer upon excrementitious matters, and others whose decomposition yields ammonia and its compounds, which are among the most abundant and offensive products in many instances. Like other compouds of chlorine, it *breaks up* ammoniacal gas; but unlike chloride of lime, it evolves no odor of its own. In this powder it is used also for the purpose of neutralizing the effect of the quicklime employed in taking up the carbolic acid. This lime would otherwise promote ammoniacal exhalations.

"When the powder is desired for strictly medicinal purposes, the lime and the salt of iron should be omitted from its composition.

"The Potter's clay or Fuller's earth, which forms the 'body' of the powder, is also a good deodorizer. It has the property in nature of retaining ammonia in the soil, to be given to the plant, as may be required. Its absorbent properties cause it to retain both moisture and gases, to which its deodorizing powers are no doubt due.

"The small quantity of charcoal is added as an aider in the absorbent process.

"The modicum of lime is present for the purpose of drying the Carbolic Acid, allowing the latter to assume a pulverulent form, without impairing its chemical properties. The Sulphate of Soda and Potash are merely adventitious ingredients. If they have an acid reaction, they are useful in case of the generation of large quantities of ammonia, but not particularly otherwise, and they are not depended upon to much extent.

"This new addition to our resources for avoiding unpleasant odors, preventing the evolution of deleterious gasses, and arresting decomposition, may therefore, by a slight variation in its constituent composition, be made applicable to different purposes, *i.e.* for medical use, it may have a maximum of carbolic

acid, and a minimum of lime and sesquichloride of iron. For ordinary deodorizing and agricultural purposes, the acid should be decreased, and the other ingredients more largely apportioned."

"The principal requirements, therefore, in any substance, to be effective as a disinfectant, are:—

"1st. That it shall remove or obviate offensive effluvia.

"2d. That it shall prevent putrefactive fermentation, so that the offensive odor, being once removed, shall not recur from the same substance.

"3d. That it shall combine with and preserve, in fœcal and other matters, the elements which form the food of plants.

"4th. That it shall be of moderate cost, and easily procurable.

"5th. That it shall add nothing to the manure injurious or preventive of its action.

"Of these several indications, our own experiments have proved some to be well answered by the Ringwood Powder, and there is sound theoretical reason to believe the others to be equally so.

"Our investigations on this important subject naturally lead to considerations connected with the practical applications of disinfectants as the means of purification, and the prevention of diseases, in all civic and military localities. We forbear, however, to extend this report any further than to express the opinion, that the great sanitary advantage to be derived from the use of the Ridgewood, or other similar deodorizers, in latrines, and cesspools of cities, and during the removal of their contents, as well as in military hospitals, camps, barracks, &c., is at once apparent. But especially would it prove valuable in preventing the decomposition of dead bodies of men and animals on the field after a battle, or in cities which have been subject to long seiges and protracted military occupation, where vast accumulations of *debris* taint the air, and are the almost inevitable cause of endemic maladies of serious character."

Clinical Lecture.—*Vaccination.*—Delivered at St. Mary's Hospital Medical School. By Graily Hewitt, M.D., Lecturer on Midwifery and Diseases of Women and Children. Continued.

Is the protective power of vaccination affected by lapse of time? This is a most interesting question, involving as it does the decision as to the necessity or otherwise of *revaccination.* It would appear that after the lapse of a certain number of years the protective power of vaccination has a tendency, more marked in some individuals than others, to wear out, and a resuscepti-

bility to smallpox arises. The history of revaccination lends support to this view, which is, as Dr. Budd has recently very justly observed, supported by what physiology teaches in reference to the change and renovation of the body, it being the fact that about every seven years the body is physically completely changed and renewed.

Some statistics as to the history of revaccination in the Prussian Army (from Mr. Simon's work), must be mentioned in connection with this subject. For many years past it has been the custom to revaccinate every soldier admitted into the Prussian army. In 1833, the system of revaccination in the army was begun; and in that year the percentage of cases in which the vaccination took effect was 33. The percentage of revaccination success has progressively increased since that time, the percentages each year being represented by the following figures:—33, 39, 42, 46, 49, 50, 52, 54, 57, 58, 57, 58, 60, 64, 64, 64, 61, 64, 69, 69, 69, 70; so that the percentage has increased from 33 to 70 per cent.

These figures prove that in Prussia—a country in which, so far as is known, vaccination is well attended to—the first vaccination has been followed by a resusceptibility to the vaccine disease, which is not represented constantly by the same figure. These statistics lead probably to the view that the efficacy of the vaccine lymph used throughout Prussia has deteriorated in process of time. The latter is a point which will be specially referred to in the next lecture. But we are now concerned with another question: the possible wearing out of the protective power of vaccination against smallpox by lapse of time. It is reasonable to infer that if a resusceptibility to the vaccine disease be shown to arise in the individual, a like resusceptibility to smallpox will concurrently arise in that particular case; and the impression has been for several years past here gaining ground that revaccination is proper, and even necessary, once or more in the life of the individual. Mr. Marston states that during 17 years not a single servant or nurse belonging to the Smallpox Hospital has taken smallpox, and the universal custom has been to revaccinate the servants, nurses, and attendants in or about the hospital on entering on their employment at this institution. It does not appear that the goodness of the first vaccination necessarily extends the limit which time usually places on the vaccination as protective from susceptibility to the vaccine disease; in other words, an individual well vaccinated at first may be found as liable to take the vaccine disease after the lapse of 20 years as one imperfectly or badly vaccinated.

For the time, and probably in by far the majority of individuals, good vaccination is almost absolutely protective; but after the expiration of a time, which appears to vary in different individuals, which is influenced by idiosyncrasy or some unknown cause, a resusceptibility to the vaccine disease—and probably also consequently to the smallpox—arises, whether the primary vaccination have been good or bad. If the effect of good primary vaccination wear out in course of time, *a fortiori* must the effects of bad vaccination wear out proportionately sooner. The conclusion to be drawn as to revaccination is, that revaccination should be performed at the age of puberty, and perhaps again at the age of 25 or 30, and that it is desirable also to revaccinate at other ages than these during epidemics of smallpox, and especially in the case of individuals likely to come into contact with smallpox patients.

History and nature of vaccination.—For a full account of the early history of vaccination, and of the manner of which, step by step, our countryman Jenner arrived at a discovery which is emphatically *the* discovery of modery times, I must refer you to the numerous works on the subject, and especially to the Report on Vaccination, by Mr. Simon, before alluded to. Time will only allow me to remind you of the chief facts. Jenner performed his first vaccination in 1796, the subject of the operation being a boy aged 8. This child was afterwards inoculated with smallpox without effect. In 1798, Jenner published his essay on the subject. In 1801, 6000 individuals had been vaccinated; and Parliament voted Jenner the sum of £30,000 in recognition of the importance of his discovery.

The disease known as the vaccine disease, and which is witnessed on the udder of the cow, is in reality the smallpox affecting the animal. In this country, Mr. Ceely, of Aylesbury, and Mr. Bradcock, of Brighton, have proved that this is the case by inoculating cows with smallpox; and well-marked vaccinia has thus been produced. From cows so inoculated individuals have been vaccinated, the results being identical with those of vaccination with matter as ordinarily obtained from the cow. It is probable that if these facts had been known at the time Jenner made his discovery, much of the prejudice which he had to encounter would have been removed. Individuals had an objection to taking the disease of an animal, but there would naturally be less objection to taking a disease the identity of which with smallpox had been proved. Jenner surmised that it was so, as is evident from the name which he gave to the disease—"variolæ vaccinæ." The vaccine disease, then, is the

smallpox which has passed through the cow, and which has, in so passing through the cow, become so modified that, when reconveyed to the human subject, it gives rise to a disease of exceedingly slight intensity, but which nevertheless is still the smallpox. For a full account of the vaccine disease I must refer you to the ever-to-be quoted paper in the "Transactions of the Provincial Medical and Surgical Association," Vol. VIII., by Mr. Ceely, of Aylesbury.

In the next place, we must consider *the phenomena produced by vaccination in the human subject.* The necessary outline of the subject now to be given must be completed by actual inspection and comparison of vaccinated cases, opportunity for which is afforded you at an adjacent public vaccination station. This practical study of the subject is absolutely essential.

Vaccination for the first time.—After the arm has been punctured, and the vaccine lymph introduced, the first effect is identical with that which would be observed if the lancet had been uncharged with lymph; it so remains during the next two days; and it is only on the third day, or towards the end of the third day, that appearances are observed about the wound of an unusual character. It then becomes red and slightly elevated. On the fifth day, the cuticle covering this little red spot is elevated into a small pearl-colored vesicle: and this vesicle evidently contains a fluid. The vesicle varies in shape, according to the shape of the incision made—it is round if a simple puncture be made; it is oval if there has been a small incision in the skin. On the eighth day—that is to say, at the close of the seventh day—the vesicle has become much larger; and it is then in perfection, as it is termed. The margin of the vesicle is turgid and elevated; the color is now somewhat yellow, not quite so transparent as it was, and, on close inspection, it is evident that the vesicle is cellular, and divided by septa, there being from 10 to 14 cells in each vesicle. Moreover, the vesicle is what is termed umbilicated, having a depression in the centre, over which part there is no elevation of the cuticle into bladders. After the eighth day, there is formed what is termed the areola, the skin around the vesicle becoming red, sometimes of a deep red tinge; the surface of this areola becomes tense, hot, and at the same time painful; the areola is usually circular. If the points of vaccination be close to each other, there will be a large red spot surrounding the whole, extending sometimes a considerable distance up and down the arm. An occasional but very rare result, and one which appears to be connected with the use of bad lymph, is inflammation of the cellular tissue of the arm.

The glands of the neck and armpit are usually slightly swollen. During the eighth and ninth, or even tenth day, the increase in the size of the vesicle goes on. It is extremely important that the two things—the *perfection* of the vesicle and its *greatest size*—should not be confounded. The vesicle is in perfection on the eighth day; but it is at its largest size on the ninth or tenth day. On the eleventh day, the vesicle begins to fade, the lymph within becomes absorbed, or the vesicle breaks, and it is discharged, and a scab forms, which becomes hard, dense, firm, and black, and finally falls off at a time which varies from the eighteenth to the twenty-first day after the performance of vaccination. There is left behind it a cicatrix, which is quite indelible if the vaccination be efficient. Such is the course of the disease normally.

Occasionally, there is observed what is termed "retardation" of the disease, and this may take place up to sixteen days, possibly even later. The arm does not "take" so early as it should do, although the disease, after it has begun to take, may go through the same course as that ordinarily observed. On the other hand, a too early taking of the vaccination indicates irregularity, and is usually due to some defective character of the lymph used.

Secondary vaccination.—As a rule, when vaccination has once been performed, the individual is no longer susceptible to the *regular* vaccinia. The effect of the vaccination is, under these circumstances, that irritation is set up analogous in *kind* to that observed in primary vaccination, but the disease sets in quickly, the redness often beginning immediately after the operation; the vesicles are imperfect; there is little evidence of presence of fluid; the duration of the effect is only five or six days (although variations in this respect may be noted), and the scar left behind is correspondingly small, and wanting in the typical characters. In quite exceptional cases the secondary vaccination takes perfectly, and the course of the second vaccination is more nearly identical with that of the first. These cases, in reality, resemble those in which has been observed the occurrence of smallpox after good vaccination.

Characters of the cicatrix following good vaccination.—It is important that you should be aware of the characters of a perfect scar, and note them accurately. The scar resulting from good vaccination is usually circular; it is radiated, indented, and foveated, having a number of little pits upon its surface; and it has a well-defined edge. Good cicatrices are generally of a considerable size. The size of a typical scar, such as

would be observed after vaccination by the puncture of a lancet, which is the ordinary method, is that of a threepenny piece—just five-eighths of an inch in diameter.

Now, what are the characters of a defective scar? A defective scar is more or less wanting in all the characters mentioned. It is comparatively smooth; without indentation; without the little pittings; the edges are irregular and ill-defined, and it is often very small.

Lastly, with reference to the phenomena of vaccination, as ordinarily observed. Up to the seventh or eighth day, the child is perfectly well, but there generally set in, at this time, some constitutional disturbance and signs of irritative fever. This varies in degree in different cases; it is sometimes considerable.

It need hardly be observed that the wound inflicted by the vaccination is, like other wounds, liable to be affected by injurious conditions of the surrounding atmosphere. Pyæmia may follow the use of bad lymph; erysipelas has, in rare instances, been observed. Ordinary care is sufficient to prevent such evils. *Lancet, June* 13, 1863.

HYDROPHOBIA.—*Electricity.*—A patient suffering from hydrophobia, and so far advanced in the disease as to have become entirely unmanageable, was secured and bound to a mattress, and a copper-wire being wound around both feet, the conductor of the negative pole was attached to this wire; and the conductor of the positive pole, through a sponge saturated with vinegar and salt, was applied to the throat, and over the spine and body generally, with the full power of the battery. This caused instantaneous cessation of the spasms, and while under the influence of electricity the patient willingly drank liquids, and was free from the usual horror of them. The current was continued for some hours, with intervals of omission; the patient began to collapse, then vomiting and purging freely followed, and finally he fell asleep, and recovery ensued. This case, which occurred in New York, under the care of Dr. Lassing, seems extraordinary, and we should be glad to hear of a repetition of the experiment in England. (Dr. H. Lassing, page 50.)

NÆVUS.—*Tartar Emetic.*—Make a plaster of from 16 to 18 grains of tartar emetic, and 1 drachm of diachylon, and spread a considerable portion of this all over, and somewhat beyond the nævus, by means of the back of a strong knife, and keep it *in situ* by means of gummed paper. On the fifth or sixth day, the entire surface of the nævus begins to suppurate, a crust

gradually forming, which passes off in about 15 days, leaving a small cicatrix. (Dr. Zeissl, page 132.)

THAPSUS VERBASCUM.—Messrs. Bullock and Reynolds, of Hanover Street, sends us a specimen of the tincture of this plant, prepared as suggested in a former number of *The Lancet*. It is of a rich dark-brown color, almost as dark as laudanum, with a peculiar odor and taste, not disagreeable, and, we should think, well represents the properties of the plant.

On the same subject, Dr. Gardner writes to us:—"I wish you would remind the readers of *The Lancet* that the season is approaching for gathering the 'thapsus verbascum,' and preparing the tincture from the freshly-dried plant. I have found it so valuable a remedy for irritable coughs,—affording, in doses of half to one drachm, great relief, without the nauseating effects of ordinary expectorants, or the disagreeable narcotism of opium,—that I strongly recommend medical men who are troubled with cough to try it on themselves. I am sure many will be gratified with the result. It is best given alone, diluted with a small quantity of water."—*London Lancet.*

CHOLERA. — *Subcutaneous Injection of Morphia.* — Opium seems of undoubted benefit in cholera, but is so generally rejected immediately from either the stomach or rectum that its full effects cannot easily be obtained. If, however, it is injected beneath the skin, its action will be found to be prompt and efficient, relieving at once the violent abdominal cramps and muscular action of stomach and rectum. Gtts. xv. of liq. morp. acet. may be injected with a Wood's syringe, beneath the skin of the abdomen. (Dr. I. Ash, page 92.)

A NEW METHOD OF AUTO-OPHTHALMOSCOPY.—M. Giraud Tuelon lately submitted to the Academy of Medicine of Paris, an instrument composed of two plain mirrors inclined one upon the other at angles of ninety-six degrees. The objective lens of the ophthalmoscope is placed before one of the mirrors, and before the other an ordinary ophthalmoscopic mirror. The left eye is then put in contact with the left mirror and the lens, the right eye with the ophthalmoscope or the mirror of the right side. A lamp is now placed on the right, as in ordinary exploration, and the auto-examination of the right eye is then very easy. M. Giraud Teulon has used the instrument upon himself with great success.—*London Lancet.*